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OSTEOCHONDRITIS, OR EPIPHYSITIS

A REVIEW *

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A brief consideration of the anatomy of the epiphyses will appropriately precede a review of our knowledge of the pathologic condition that has been variously named osteochondritis, epiphysitis and osteochondropathy, and which in special regions of the body has been given many descriptive designations or has been named after its discoverer or discoverers.

John Poland's [1] description in 1898 of the anatomy of the epiphyses has not been improved on, and the facts here presented are in accordance with his findings.

All the long bones have an epiphysis at each end, with the exception of the metacarpals, the metatarsals, the phalanges of the hands and feet, and the clavicle, all of which have an epiphysis at only one end.

The epiphyses, at birth, are composed of cartilage, with the exception of those of the lower end of the femur and the upper end of the tibia, which are partly ossified. It has long been known, in fact ever since the time of John Hunter, who proved it by animal experiments, that increase in length of bone takes place at the epiphyses. In the long bones, ossification always proceeds more rapidly at one end than at the other, and is more rapid and continues longer at the end at which the epiphysis is last united to the shaft.

Although in maturity the epiphyses freely communicate with the diaphysis, in earlier life the epiphyses are completely shut off from the diaphysis by the epiphyseal cartilage. It is only in disease conditions, especially in rickets, that the cartilaginous line is penetrated by blood vessels. "The epiphyses obtain their blood supply from the periosteal network of arteries, large branches of which perforate the thin layer of compact tissue on their exterior, and are distributed throughout the spongy cancellous tissue. Nearly the whole of the blood supply is therefore independent of the diaphysis. Only one or two minute arteries pass into the epiphyses from the diaphyses through the conjugal cartilage. This accounts for the comparatively infrequent occurrence of necrosis of the epiphysis even when the diaphysis is more or less completely displaced from off the epiphysis" (Poland).

Ossification takes place from the center of the epiphysis and proceeds toward the periphery until the entire epiphysis is ossified, with the exception of a thin layer at the junction of the shaft forming the epiphyseal cartilage or disk.

The importance of a thorough knowledge of the epiphyses, the time of their beginning ossification and their final junction with the shaft, and their number and relation to the shaft cannot be too strongly emphasized. Those interested in the subject are referred to Cohn's "Normal Bones and Joints" [2] and to Paul H. Stevenson's paper on "Age Order of Epiphyseal Union in Man." [3]

That the condition under consideration in this paper is a pathologic entity there now seems no reasonable doubt. The etiology, however, is still under discussion, and there is no general agreement on the actual pathologic changes that occur. There seems little doubt that the etiologic factors and the pathologic changes are similar in Legg's disease, Schlatter's disease, Köhler's disease of the tarsal scalphoid and Köhler's disease of the head of the second metatarsus. Recently another condition, namely, vertebral epiphysitis, has been added to the list, and it is quite probable that the same disease occurs in other epiphyses, especially those subjected to trauma, such as the epiphyses of the os calcis and of the olecranon. There is also fairly good evidence that the osteochondritis dissecans of König and the rare condition called malacia of the semilunar bone belong to the same category.

There is no general agreement on the etiology of epiphysitis except that it is quite definitely known that the disease is not tuberculous, rachitic or syphilitic. The infectious theory has a little evidence to support it, but the cases in which operation has been performed and in which a possibly causative organism has been isolated are so few that they may be explained on the grounds of coincidence or accidental contamination. Among the recent writers who favor the infectious theory as the determining or contributing cause are McWhorter,[4] Egaña,[5] Lewin,[6] Büttner,[7] Buchman,[8] Kidner [9] and Phemister.[10]

The theory of an endocrine origin is a pure assumption with no reliable evidence to support it.

* Chairman's address, read before the Section on Radiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Poland, John: Traumatic Separation of the Epiphyses, London, Smith, Elder & Co., 1898.

2. Cohn, Isidore: Normal Bones and Joints (Ann. Roentgenol. **4**) New York, Paul B. Hoeber, 1924.

3. Stevenson, P. H.: Age Order of Epiphyseal Union in Man, Am. J. Physical Anthropol. **7**: 53-93, 1924.

4. McWhorter, G. L.: Operation on Neck of Femur Following Acute Symptoms in a Case of Osteochondritis Deformans Juvenilis Coxae (Perthes' Disease), Surg. Gynec. Obst. **38**: 632-637 (May) 1924.

5. Egaña, A. R.: Infantile Deforming Osteochondritis, Legg-Calvé's Disease, Semana med. **32**: 549-566 (Sept. 3) 1925.

6. Lewin, Philip: Juvenile Deforming Metatarsophalangeal Osteochondritis, J. A. M. A. **81**: 189-192 (July 21) 1923.

7. Büttner, Georg: Perthes' Disease, Med. Klin. **21**: 685 (May 8) 1925.

8. Buchman, J.: Vertebral Epiphysitis: A Cause of Spinal Deformity. J. Bone & Joint Surg. **7**: 814 (Oct.) 1925.

9. Kidner, F. C.: Causes and Treatment of Perthes' Disease, Am. J. Orthop. Surg. **14**: 339 (June) 1916.

10. Phemister, D. B.: Operation for Epiphysitis of the Head of the Femur (Perthes' Disease), Arch. Surg. **2**: 221-230 (March) 1921.

A history of trauma is present in some of the cases, but not in a sufficient percentage to make it appear the ultimate causative factor. The fact, however, that all the conditions classified as epiphysitis occur in locations that are subject to long-continued trauma, such as weight bearing, pressure or muscular pull or a combination of two or more of these, increases the probability that chronic injury is a most important factor in

Fig. 1.—Osteochondritis deformans juvenilis coxae (Legg-Calvé-Perthes' disease).

the etiology of epiphysitis. Even among those who accept the rôle of trauma, however, there is no consensus as to the pathologic changes produced. Some hold the view that the pathologic picture is such as is usually seen in a healing fracture; others report that they find an inflammatory process, while the majority interpret the pathologic changes as those of necrosis due to interference with the blood supply to the epiphysis. The supposition has been advanced that the condition is primarily due to some developmental anomaly or constitutional disturbance which eventually results in poor nourishment of the epiphysis at the time of its most rapid development. There is no good evidence to support this supposition, but Hartley [11] makes the following observation: "It is interesting to note that each lesion is associated with a definite age period, and that in each the age period is that in which the affected bone nucleus normally is actively developing." The opinion of the majority of investigators inclines to the idea that the disease is due to long-continued or occasionally acute trauma, resulting in interference with the circulation and in subsequent necrosis involving both the bone and the cartilage of the epiphysis.

I shall now proceed to a brief consideration of the various conditions that may be classed under the heading epiphysitis or osteochondritis.

OSTEOCHONDRITIS DEFORMANS JUVENILIS COXAE

Osteochondritis of the upper epiphysis of the femur was first described by Legg,[12] in February, 1910, later by Calvé,[13] in July, 1910, and still later by Perthes,[14] in October, 1910. The condition may be mistaken clinically for tuberculous coxitis, but the roentgen-ray appearance is characteristic (fig. 1). The bony nucleus of the femoral head flattens, becomes fragmented, the normal trabeculation is lost, and there is later increased density, because of the deposition of calcium salts. There is no blurring of the joint space nor are there any pathologic changes in the acetabulum or in the diaphysis of the femur. The final state after healing has occurred is a flattened condition of the head and a broadening of the femoral neck.

OSGOOD-SCHLATTER'S DISEASE

Separation of the tibial tubercle in adolescents was described by Osgood [15] in 1903 and by Schlatter [16] in 1908. It was at first thought to be simply a traumatic separation sometimes combined with fracture of the epiphysis of the tibial tubercle. This, of course, does sometimes occur; but the true Osgood-Schlatter's disease shows characteristic changes in the bone which stamp it as a true disease entity. The disease usually occurs in boys from 13 to 15 years of age; that is, at an earlier age than simple traumatic separation of the epiphysis, which is more common from 16 to 18 years of age. In the roentgenogram the bone nucleus is altered in shape and becomes irregular and fragmented,

Fig. 2.—Köhler's disease of the tarsal scaphoid. (Case of Dr. G. W. Holmes, Massachusetts General Hospital.)

and the normal trabeculae disappear. The end result is complete restitution of the tubercle to its normal position and appearance.

11. Hartley, J. N. J.: Osteochondritis Deformans Juvenilis, Schlatter's Disease, and Other Allied Conditions, Edinburgh M. J. **30**: 254-259 (June) 1923.

12. Legg, A. T.: An Obscure Affection of the Hip-Joint, Boston M. & S. J. **162**: 202-204 (Feb. 17) 1910.

13. Calvé, Jacques: Sur une forme particulère de pseudo-coxalgie greffée sur des déformations caractéristiques de l'extrémité supérieure du fémur, Rev. de chir. **62**: 54-84 (July) 1910.

14. Perthes, G.: Ueber Arthritis deformans juvenilis, Deutsche Ztschr. f. Chir. **107**: 111-159 (Oct.) 1910.

15. Osgood, R. B.: Lesions of the Tibial Tubercle Occurring During Adolescence, Boston M. & S. J. **148**: 114-117, 1903.

16. Schlatter, C.: Incomplete Tear-Fractures of the Tibial Tuberosity, or Growth Anomalies? Beitr. z. klin. Chir. **59**: 518-546, 1908.

KÖHLER'S DISEASE OF THE TARSAL SCAPHOID

Unfortunately, two different conditions have been called "Köhler's disease," one of them affecting the scaphoid bone of the foot and the other the head of the second metatarsus.

Köhler's disease of the scaphoid bone occurs most commonly between the ages of 3 and 10, and is more

Fig. 3.—Same as figure 2, lateral view.

common in boys than in girls. The clinical manifestations are often very slight, and consist of pain and swelling in the region of the tarsal scaphoids. The roentgen-ray appearance is characteristic (figs. 2 and 3). The bony nucleus of the scaphoid is smaller than normal, irregular in outline and of markedly increased density. The appearance is quite similar to that which is seen in osteochondritis deformans coxae with the exception that there is no fragmentation of the bony nucleus. The joint spaces remain clear and the surrounding tarsal and metatarsal bones are normal in appearance.

KÖHLER'S DISEASE OF THE SECOND METATARSUS

Köhler's disease of the second metatarsus was originally described by Freiberg,[17] who called it an infraction of the metatarsal head, and it is therefore occasionally called "Freiberg's infraction." Descriptive designations also are used, such as "juvenile deforming metatarsophalangeal osteochondritis"[6] and "metatarsal epiphysitis."

Köhler[18] gives the seven cardinal signs of the disease as follows: changes of the base of the proximal phalanges, considerable broadening of the joint space, striking irregularity of the latter, flattening of the head, calcium bodies in the joint capsule, thickening of the distal half of the metatarsal bone and disappearance of the neck.

Axhausen[19] recognizes five stages of the disease, depending on the roentgen-ray findings. The first stage is recognizable only by the clinical features of localized pain and tenderness and shows no roentgen-ray changes; the second stage shows flattening of the head and commencement of thickening of the metaphysis; in the third stage the flattening of the head and broadening of the shaft are increased, and there are present sclerotic areas in the head surrounded by transparent zones giving a sequestrum-like appearance; in the fourth stage the sequestrum-like appearance has disappeared and the entire head is flattened, its density is increased and the epiphysis is much broadened, but the thickening of the shaft is not so great; the fifth and final stage shows the picture of a marked arthritis deformans with joint changes and marginal elevations, in addition to the deformity of the metatarsal head. Axhausen believes that the histologic picture and the sequence of events in this disease prove quite definitely that the condition is not originally an infraction of a healthy bone. He ascribes it to interruption in nutrition of the bony epiphysis with subsequent pathologic fracture. The end result is analogous to arthritis deformans, and Axhausen suggests the name arthritis deformans infantilis or juvenilis of the metatarsopha-

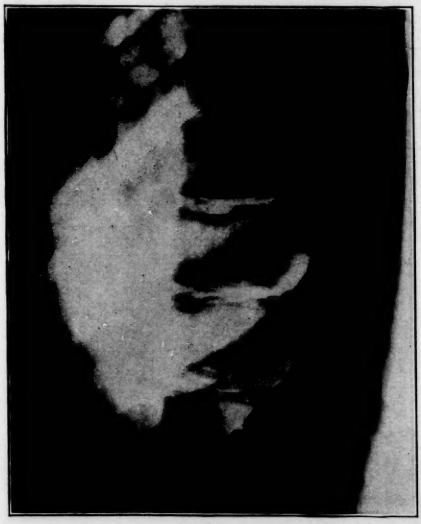

Fig. 4.—Vertebral epiphysitis.

langeal joint. He offers proof that the disease is not originally due to trauma by citing a case in which the head of the bone was examined histologically before the roentgen-ray examination showed any changes. In

17. Freiberg, A. H.: Infraction of the Second Metatarsal Bone: A Typical Injury, Surg. Gynec. Obst. **19**: 191-193, 1914; Tr. South. Surg. & Gynec. A. **26**: 171-174, 1914.

18. Köhler, A.: On the First Announcements of the Typical Disease of the Second Metatarsophalangeal Joint, München. med. Wchnschr. **71**: 109 (Jan. 25) 1924.

19. Axhausen, G.: The Anatomic-Pathologic Course of Köhler's Disease of the Head of the Metatarsal and of Perthes' Disease of the Hip, Arch. f. klin. Chir. **124**: 511-542, 1923; The Pathologic Process in Köhler's Disease of the Head of the Metatarsus and in Perthes' Disease of the Head of the Femur, Zentralbl. f. Chir. **50**: 553-558 (April 7) 1923; Köhler's Disease of the Metatarsophalangeal Joint, Med. Klin. **19**: 561-565 (April 29) 1923.

this case, the whole bony epiphysis, together with its marrow, was completely necrotic. The necrosis was limited to the bony epiphysis and there was no evidence whatever of infraction.

Schreuder [20] is not convinced by Axhausen's presentations and adheres to the view that the condition is brought about by chronic trauma.

Whether the condition is primarily due to interference with the circulation and subsequent trauma or whether trauma is the primary cause, there seems no doubt that chronic injury is a large factor in this as well as in the other conditions under consideration in this paper. Axhausen's work seems to have been done carefully and his arguments seem very convincing to me. This disease of the head of the second metatarsal bone is similar in many characteristics to osteochondritis deformans coxae and to Köhler's disease of the navicular bone, but there is one striking difference: the two latter occur more frequently in boys while the former occurs more frequently in girls.

VERTEBRAL EPIPHYSITIS

In 1921, Scheuermann [21] described a condition which he called osteochondritis deformans juvenilis dorsi, an affection of the epiphyses of the bodies of the vertebrae. He thought this explained the condition called kyphosis dorsalis juvenilis, so-called schoolchild or muscular kyphosis.

Buchman,[8] in 1925, presented the results of the examination of 120 unselected cases of various spine affections in children, sixty-five of which were so-called idiopathic posterior and lateral curvature. Of these sixty-five cases, fifty-four, or 83 per cent, showed positive evidence of the type of epiphyseal disease described by Scheuermann. There were also three cases without any clinical spinal deformities which showed the roentgen-ray changes of vertebral epiphysitis; two of these were symptomless. The latter seem to show that the disease precedes and is not secondary to the spinal deformity.

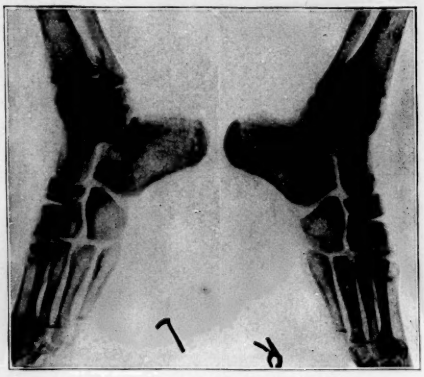

Fig. 5.—Epiphysitis of the os calcis. The changes are especially noticeable in the left foot. There is also evidence of inflammatory changes in the epiphyses of both tibias.

Vertebral epiphysitis appears to be a self-limiting disease most commonly affecting the dorsal region. Buchman made a study of the vertebral epiphyses in the normal spine, and states that both the superior and the inferior vertebral epiphyses appear at about 11 or 12 years of age. They appear first in the lower dorsal region and then extend up and down the spinal column. In the roentgenogram they show as small triangular shadows adjacent to the anterior-inferior and the anterior-superior angles of the bodies. Later they become elongated and appear as thickenings anteriorly and posteriorly, the two being connected by their linear shadows. Stereoscopically, they show as rings, thick at the periphery and thin in the center. Normally, the intervertebral spaces are clear. Any gross deviation from the foregoing findings in time of appearance of the epiphyses, in the order of their appearance or changes in contour, Buchman states, are evidence of disease.

Fig. 6.—Osteochondritis dissecans.

The roentgen-ray findings in vertebral epiphysitis are as follows: The epiphyses become enlarged, ragged in contour and indistinct in outline; the superior and inferior margins of the bodies become ragged and the joint spaces cloudy and indistinct. The disease occurs in patients between 10 and 20 years of age and is characterized clinically by symptoms of fatigue, backache and tenderness at various points along the spine. A considerable proportion of the patients have spinal deformity.

The following is a somewhat typical case of vertebral epiphysitis:

A girl, aged 15 years, unusually tall for her age, was observed, about a year before I saw her, to be becoming round shouldered. She complained of pain in the back, especially when she sat down. There was a rather marked kyphosis in the lower dorsal and upper lumbar region. The roentgen-ray examination showed the presence of slight scoliosis and marked kyphosis in the lower dorsal and upper lumbar region (fig. 4). The bodies of the three lower dorsal and the two upper lumbar vertebrae were somewhat beveled and irregular on their superior and inferior aspects. The epiphyses, where they could be seen, were fragmented and indistinct, and the joint spaces were hazy.

Buchman believes, as Scheuermann did, that vertebral epiphysitis is analogous to osteochondritis deformans juvenilis coxae in etiology and pathology, and also to Schlatter's and Köhler's diseases and to the multiple epiphysitis of adolescence.

20. Schreuder, O.: Can the Disease of the Second Metatarsus (Köhler) be the Result of a Chronic Trauma? Deutsche Ztschr. f. Chir. **178**: 145-159, 1923.

21. Scheuermann, H.: Kyphosis dorsalis juvenilis, Ztschr. f. orthop. Chir. **41**: 305-317, 1921.

MISCELLANEOUS CONDITIONS CLASSIFIABLE AS EPIPHYSITIS

Epiphysitis of the Os Calcis.—A pathologic process of the developing epiphysis of the os calcis has been mentioned by various writers during recent years. Lewin [22] states that the condition is fairly common in boys between the ages of 9 and 13, and that it is probably due to both external and internal trauma and to local circulatory changes during the critical period of growth.

Figure 5 shows the usual roentgen-ray appearance of epiphysitis of the os calcis. This was the case of a boy, aged 10, who complained of pain in his knee, ankle and foot. The changes are especially noticeable in the epiphysis of the os calcis of the left foot. There are areas of rarefaction alternating with areas of increased density. In addition to the changes shown in the os calcis of each foot, it will be noted that definite pathologic changes are present in the lower epiphyses of both tibias. Both hips and both knees were examined but showed no evidence of Legg's or Schlatter's disease. Six months later, the changes in the os calcis had entirely disappeared and the epiphysis had regained its normal cancellous structure.

Osteochondritis Dissecans of König.—König [23] first described this condition in 1887, and Axhausen [24] made a critical study of it in 1924. The latter holds the same views with regard to the pathology of this disease as he does regarding Legg's and Köhler's diseases; namely, that it is an aseptic necrosis of the epiphysis followed by mild injury. The free joint bodies originally described by König are explained by Axhausen as the results of the pathologic compression fracture of the dead epiphysis with the formation of a wall of bony débris which interferes with bony substitution and forces the process of delimitation to appear (fig. 6).

Pathologic processes analogous to those described above have been reported in the developing olecranon, in the epiphyses of the ilium, in the semilunar bone, and elsewhere. It seems probable that no epiphysis in the body is immune to the disease. It is the general opinion that all of these conditions which pass under various names are the same pathologic entity modified only by the particular location in which they occur.

1909 Massachusetts Avenue.

22. Lewin, Philip: Apophysitis of the Os Calcis, Surg. Gynec. Obst. **41**: 579-582 (Nov.) 1925.
23. König: Ueber freie Körper in den Gelenken, Deutsche Ztschr. f. Chir. **27**: 90-109, 1887.
24. Axhausen, G.: Regarding Osteochondritis Dissecans of König, Klin. Wchnschr. **3**: 1057-1060 (June 10) 1924. Regarding the Walling-Off Process in Epiphyseal Bone (Osteochondritis Dissecans of König), Virchow's Arch. f. path. Anat. **252**: 458-518, 1924.

Psychopathology Is Not Psychiatry.—Psychopathology connotes, not a mere description of mental symptoms, but an endeavor to explain disorder or certain disorders in terms of psychological processes. The distinction expressed here is of the greatest importance for a clear understanding of the subject. The description of mental symptoms constitutes clinical psychiatry, and is as distinct from psychopathology as clinical medicine is from pathology. In the former case we are concerned with the recording of clinical phenomena, in the latter with the elucidation of the processes responsible for these phenomena. To enumerate the delusions which a patient expresses is not psychopathology but clinical psychiatry, and we do not pass beyond this until we endeavor to explain the incidence of the delusions in terms of causal processes. Moreover, this explanation is only psychopathological if it is couched in the language of psychology and built up of psychological conceptions.—Hart, Bernard: *Lancet* **1**:585 (March 20) 1926.

OSTEOMYELITIS VARIOLOSA

REPORT OF A CASE OBSERVED DURING THE ACUTE STAGE *

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The osteomyelitis of smallpox divides itself into two distinct groups. The first, a rather infrequent complication, is the suppurative type, which occurs as a result of secondary infection. The second is due to the variola itself, occurs during the course of the disease, and has all the histologic characteristics of the typical smallpox lesion. This type of osteomyelitis is nonsuppurative and resembles closely the lesions found in orchitis variolosa. Chiari,[1] in 1892, described osteomyelitis variolosa in detail. In a large number of necropsies on smallpox patients, he found necrotic foci widely distributed through the bone marrow of the long bones and, in a few cases, in the sternum and vertebrae. The lesions were found as early as two days and as late as two months after appearance of the eruption, without any evidence of suppuration, even in the late cases. Although he found this condition

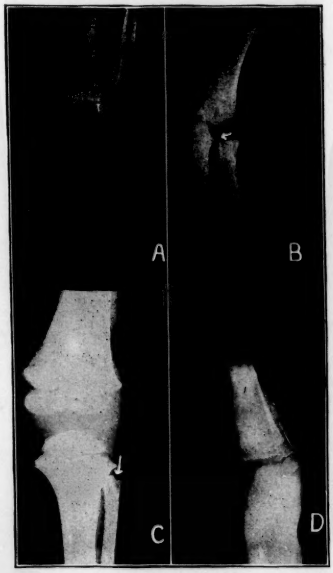

Fig. 1.—Appearance of the wrist, elbow, knee and ankle, seven weeks after onset, showing area of destruction in the diaphysis just at the epiphyseal line: The roughening of the epiphysis itself on the diaphyseal side is in contrast to the normal articular surface; the similarity of the process in each region and the presence of only two ossific carpal nuclei should be noted.

* From the Departments of Pediatrics and Roentgenology of the Minneapolis General Hospital.
* Read before the Section on Diseases of Children at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.
1. Chiari: Beitr. z. path. Anat. u. z. allg. Pathol. **13**: 13, 1893.

in 86 per cent of the cases he examined, there are very few clinical case reports.

In 1910 and 1913, Musgrave and Sison [2] reported twenty cases of marked bone deformities in adults from whom they obtained a history of smallpox in childhood. The fact that the bone disturbance began to manifest itself first during the course of the attack of variola,

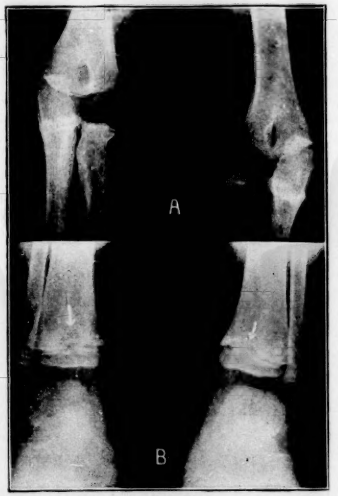

Fig. 2.—Elbows, *A*, and ankles, *B*, about five months after onset: The repair proce s, the new bone formation on the humerus, and the roughened ends of the diaphyses are shown; the exactly symmetrical character of the process should be noted.

together with the work of Chiari, led them to believe that this was the etiologic factor. From the character of the deformity—a shortening of the long bones with no disturbance in circumferential growth—they inferred that the site of the disease was either in the epiphysis or in the area of growth. Since then there have been several other case reports. W. L. and C. P. Brown [3] have recently reviewed the whole literature adequately.

It is notable, however, that there has never been a clinical report of this condition observed during the acute stage. The case reported below is therefore of considerable interest, as we have been able to observe this condition in all its stages.

REPORT OF CASE

B. R., a white boy, aged 4 years, born in America, of Irish parentage, was admitted to the contagious department of the Minneapolis General Hospital, Dec. 18, 1924, suffering from pharyngeal diphtheria. He had been ill four days. He was given antitoxin; the recovery was normal and, the culture becoming negative, he was discharged to his home, December 28. He was still weak and had not fully recovered his strength when he became very ill again, Jan. 1, 1925.

He developed a paralysis of the soft palate at this time, from which he later recovered completely. Two days later, a generalized rash appeared. At about the same time it was noted that he would not move his arms. A physician diagnosed the rash as smallpox, which was then epidemic, and considered the difficulty of movement of the arms to be postdiphtheritic paralysis, along with that in the soft palate. He was readmitted to the hospital, January 7, presenting a typical variolar eruption, with some vesicles already appearing. There was at this time pain on motion of the wrists and elbows, which in a few days became slightly swollen and tender.

The variola ran a moderately severe course and was complicated by the appearance of a pemphigus eruption, January 12. On the 15th, the pains and the swollen, tender joints were noted in both arms and legs. A week later, he complained of pain in the neck, which was stiff and tender. The rash gradually disappeared.

About twenty-four days after the appearance of the eruption, he was seen by one of us in consultation. The evidences of variola were almost gone, but there was a diffuse, rather fusiform swelling of almost all the joints, with a rigidly held, tender neck. There was evidence of acute bronchitis. The temperature at this time ranged from 100 to 102 F. The condition was thought to be acute polyarticular arthritis, and he was transferred to the pediatric service.

He continued to have a high temperature; the leukocyte count was 22,000, and he did not respond well to the usual treatment. In view of these circumstances, it was thought that acute arthritis was insufficient to explain the symptoms. It was found necessary to make a transfusion several times, with apparently good results.

February 13, six weeks after the onset, the first roentgenograms of the joints were made. One of the wrist, elbow, knee and ankle is shown in figure 1. The appearance is striking. There was no abnormality of the articular surfaces, but a distinctly destructive process at the end of the diaphysis, just at the epiphyseal line. The latter, as well as the diaphysial side of the epiphysis, was roughened and irregular. The area of growth itself, being cartilaginous, cannot be demonstrated in the roentgenograms, but no doubt was attacked by the process. The lesion was notable for its perfect symmetry, widespread invasion, and localization to the region of the epiphyseal line. The wrists, elbows, shoulders, knees, ankles and the first cervical vertebra were included, the hip being the only large joint that escaped. The lesions in every case were bilateral and almost equal on the two sides. The marked

Fig. 3.—*A*, lateral view of cervical vertebrae eight weeks after onset; the marked destruction of the body of the first cervical and the anterior dislocation are well shown; *B*, similar view nine months later; the extensive new bone formation producing union between the first and second cervical vertebrae can be distinguished.

destruction of the first cervical vertebra, with anterior dislocation of the second, can be seen in figure 3 *A*. The appearance of the lesion in the long bones was slightly suggestive of congenital syphilis. The Wassermann reaction was negative. The diagnosis of osteomyelitis variolosa, both clinically and roentgenologically, became obvious at this time.

2. Musgrave and Sison: Philippine J. Sc. **5**: 553, 1910; **8**: 67, 1913.
3. Brown, W. L., and Brown, C. P.: Osteomyelitis Variolosa, J. A. M. A. **81**: 1414 (Oct. 27) 1923.

Repeated roentgenograms were made and showed progressive destruction, then repair. Figure 2 indicates the condition in the elbows and ankles about five months later. The repair process with new bone formation on the humeri and the roughened ends of the diaphyses are well shown. The exactly symmetrical character of the lesion should be noted.

Extension was immediately applied to the head by the orthopedic consultant, Dr. Paul Giessler. The patient continued to have a fluctuating temperature with leukocytosis until the latter part of March, almost three months from the onset, when it became normal. The swelling and tenderness in the joints gradually disappeared, and the patient could move them without difficulty. There was never any fluctuation or other evidence of suppuration, aside from the temperature and leukocytosis.

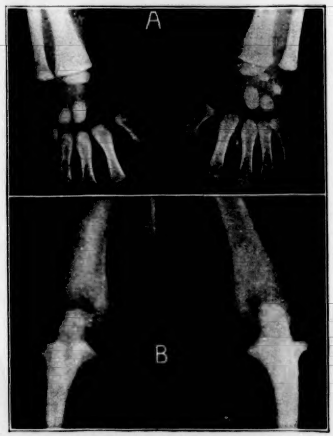

Fig. 4.—*A*, condition in wrists eleven months after onset; there is practically complete repair; the presence of five ossific nuclei in the left and two in the right should be noted; *B*, condition in the elbows eleven months after onset; repair is not so complete and there is still irregularity of the ends of the diaphyses; the symmetry of the process is again shown.

The general condition improved notably following transfusions and general supportive treatment. The patient was finally discharged under the observation of Dr. Giessler, who made a jury-mast for the support of the head.

The final roentgenogram of the cervical vertebrae, taken Dec. 3, 1925, eleven months after onset, is shown in figure 3 *B*. The evidence of repair is obvious. The dislocation is still present, and union has developed between the atlas and the axis. Figure 4 *A* and *B* reveals the condition of the wrists and elbows at the time of discharge. The former appear fairly normal, but the proximal ends of the radius and ulna show irregularity with new bone formation and evidence of repair. The epiphyses have not appeared there as yet, so it is difficult to determine how marked the process was. The presence of five ossific nuclei in the left and only two in the right wrist is worthy of note. The latter represents a marked delay for a 5 year old child, due no doubt to the infectious process.

Figure 5 *A* and *B* represent the last roentgenograms of the knees and ankles. Some destruction is still present in the proximal end of the fibula, with evidence of repair taking place. The region of most interest is the distal end of the tibia, where repair has taken place to such an extent that there is beginning closure of the epiphyseal line.

The child appears normal at this time except for holding the head abnormally forward. There is good movement of the head, neck and all the extremities.

COMMENT

A case of smallpox in a child presents a clinical picture of acute polyarticular arthritis, the symptoms in the arms having appeared shortly after the eruption and the involvement of the other joints following rapidly. Roentgenographic examination revealed a symmetrical, widespread, destructive process at the epiphyseal line of the long bones, and in the first cervical vertebra, which became dislocated. The acute condition of the bones continued for two months after the eruption of the variola disappeared, being accompained by rise of temperature and by leukocytosis. Repair finally occurred with almost complete recovery except for the dislocation of the first cervical vertebra.

The rapidity of the onset, the symmetrical widespread dissemination, the involvement of a vertebra in the process, and the absence of suppuration, all coincide with Chiari's findings. The extremely selective character of the lesions attacking only the region of the area of growth confirms the idea of Musgrave and Sison, which they deduced from the deformities that they observed. The findings in the distal end of the tibia as shown in figure 5 *B* indicate the manner in which these deformities may occur. If the repair process continues here, and there is closure of the epiphyseal line at this early age, marked shortening of the tibia will result; if the fibula continues to grow, a distortion of the foot very similar to their descriptions must occur.

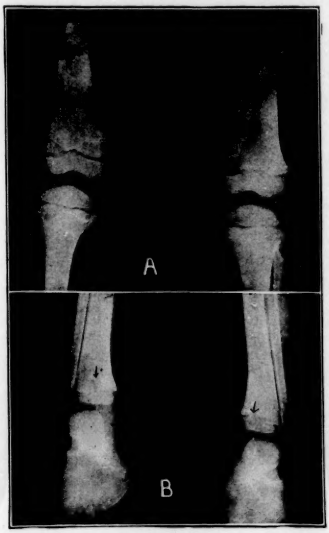

Fig. 5.—Knees, *A*, and ankles, *B*, eleven months after onset; repair is not complete in the proximal end of the fibula; the distal epiphysis of the tibia should be noted; it is almost united in its middle portion to the diaphysis by the repair process.

The dislocation of the first cervical vertebra without serious symptoms is notable. The apparently full recovery is also of interest.

The rarity of this condition is shown by the fact that we made roentgenographic studies in a large number of other cases of smallpox, many of which patients

complained of bone and joint pains, without discovering any other similar case. It is notable that in the recent severe epidemic, which was thoroughly studied, no other case has been reported. This may be due to the lack of roentgenographic facilities, which are usually difficult to obtain in the contagious hospitals. It is obvious that the roentgen-ray examination was indispensable in this case.

SUMMARY

In a case of nonsuppurative osteomyelitis variolosa, observed during the acute stage, destructive lesions about the epiphyseal lines of all the long bones and in the body of the first cervical vertebra were observed in a child, appearing almost simultaneously with the eruption of the variola.

Dislocation of the first cervical vertebra occurred. Eleven months later, practically complete repair of all the lesions was present. An abnormally early closure of the epiphyseal line in both tibias appears to be taking place, which explains the manner of production of the bone deformities reported by other observers.

ABSTRACT OF DISCUSSION

DR. ORVILLE EGBERT, El Paso, Texas: As Dr. Brown is not here, I will show a few of his slides which represent the series of his cases, and a few others that illustrate the sequelae of this peculiar condition. As the author's paper indicated, the destructive process is in the epiphysis of the bone. The longitudinal growth of these bones is destroyed, and grave deformities develop because of the normal growth of the companion bone.

TWENTY-FIVE YEARS OF CONGENITAL SYPHILIS IN BOSTON

A STATISTICAL AND COMPARATIVE STUDY *

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BOSTON

Congenital syphilis plays a small part in the individual professional life of any one of us, but in the mass its destructive activities in fetal and infantile life are so appalling that any effort to reduce its incidence and mortality is well worth while. The present study is based on records available in all departments of the Children's Hospital and the Infant's Hospital, from Jan. 1, 1901, to Dec. 31, 1925. The diagnosis was made in 1,446 cases. On careful checking up, only 581 cases were accepted for use, the others being discarded on account of too short a period of observation or insufficient or incomplete data. The records analyzed for this paper are those only which have satisfied all criteria for the diagnosis of congenital syphilis.

INCIDENCE

The numbers of syphilitic babies in a given community have been estimated by various observers to be as high as 3 or 4 per cent of the total population. The most believable figures are those compiled from known hospital residents and are given in table 1.

INCIDENCE BY RACIAL STOCK

The accompanying tables afford comparison between Hinton's [1] observations as to the incidence in relation to racial stock among pregnant women, and my own in relation to the patients in this series. The term "Anglo-Saxon" is used to denote Americans of that stock in distinction to Canadian, English and Scotch immigrants. The determination of racial stock by type of name was found to be fallacious in certain instances, notably one in which "Dooley" turned out to be a negro baby, and the possessor of the name of one of Boston's oldest and proudest families turned out to be

TABLE 1.—*Incidence of Syphilis*

Reporter	Source	Cases	Per Cent
Jeans	Abt's Pediatrics	Pregnant women	10
		White babies	1
		Negro babies	15
		Poor whites	2
		Moderate and well-to-do whites	1
		Latent	1
Churchill	Hospital	Total	3
Findlay	Am. J. Dis. Child. 28:133 (Aug.) 1924	Old	10
		New	1
Ladd	Personal communication	700 institution children; 3 doubtful Wassermann reactions	0.0
Hinton	Am. J. Syph. 7:155 (Jan.) 1923	Pregnant women	4.18
Webber	Personal communication	Massachusetts Department of Public Health, 1918-1925	0.066
Sylvester	Hospital		0.6

a Russian Jew of the first generation born in this country. I have recalculated Hinton's figures and have based my own on the percentage incidence per racial stock group to the total number of syphilitic patients, rather than the percentage of syphilitic patients occurring in each racial group.

MORTALITY

It is obvious that in the very nature of things no accurate determination can be made of the total number of fetal deaths caused by maternal syphilis. Williams [2] credits syphilis with being the greatest single cause. Other observers, from material gathered in pregnancy and lying-in clinics, estimate that from 15 to 25 per cent of all fetal deaths are due to syphilis.

Among living children very few estimates have been made as to the total death rate from syphilis during the first year. Jeans [3] states that from conception to the end of the first year the total mortality among syphilitic babies is about 50 per cent. Webber [4] reports 1,709 syphilitic deaths out of the 21,191 cases reported to the Massachusetts Department of Public Health during the last eight years. This is 8.5 per cent. In this study, the total mortality was 51.8 per cent. I have divided the cases into three groups:

1901-1914 (pre-Wassermann): recorded mortality, 58.2 per cent. Undoubted additional mortality, 22.8 per cent.

1915-1919 (Wassermann and arsenic), 33 per cent.

1920-1925 (organized clinic and social service), 21.5 per cent.

During the remainder of this paper I shall refer to the mortality of the first period as 85 per cent, from the fact that the additional 22.8 per cent have every right, by reason of the circumstances of their disappearance from the clinic and their extremely poor condition at the last recorded observation, to be regarded as dead.

* From the Medical Services of the Children's Hospital and of the Infant's Hospital.

* Read before the Section on Diseases of Children at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Hinton, W. A.: Am. J. Syph. 7:155 (Jan.) 1923.
2. Williams, J. W.: Obstetrics, 1915.
3. Jeans, in Abt's Pediatrics.
4. Webber: Personal communication to the author.

MORBIDITY

Syphilitic children are notoriously sickly. They pick up colds, and have otitis media, pneumonia and other nonsyphilitic infections with regularity. A study was made of all cases by groups as above, and morbidity

TABLE 2.—*Ancestry*

	Hinton (Pregnancy), Per Cent	Sylvester, Per Cent
Anglo-Saxon	25.6	19.2
Canadian	3.0	3.6
English	1.5	2.0
German	0.0	1.5
Irish	5.0	36.5
Jewish	3.6	3.2
Negro	24.25	6.6
Italian	8.6	21.4
Scattering	3.6	7.0

established on the basis of more frequent superimposed infections than the average child had a right to have, and a recorded weight or condition of 10 per cent or more below normal:

1901-1914, 85 per cent.
1915-1919, 50 per cent.
1920-1925, 35 per cent.

INFLUENCE OF THE WASSERMANN REACTION ON DIAGNOSIS

The Wassermann laboratory was organized and developed at the Harvard Medical School, by the state of Massachusetts, in 1915. Previous to that time we had had occasional and sporadic Wassermann tests done, but the results were so contradictory and our experience in getting blood from small babies so discouraging that it was not until the opening of the laboratory in 1915 that we made regular and routine use of the reaction. Its usefulness for diagnosis proved to be very disappointing in the early cases. We have learned by sad experience that a baby's serum is very often negative until he is 2 or 2½ months old; that his mother's serum is often negative until the baby is 5 or even 6 weeks old, and that the father's blood is often negative through treatment or even through failure to have the disease. In the so-called latent cases, however, the Wassermann test is the only true guide to diagnosis.

MORTALITY IN RELATION TO AGE AT ONSET OF SYMPTOMS AND AGE AT WHICH TREATMENT WAS BEGUN

The accompanying charts show in the black dots the percentage of fatal cases whose history indicates the age at onset of manifestations. The crossed dots indicate the age at which these groups appeared for treatment. It is evident from these charts that the mortality of patients appearing with a story of lesions manifest as early as from 3 to 4 weeks is tremendous. It is manifest that the mortality among patients appearing as late as 4 months is low, but it must be remembered that most of the patients have either died or appeared for treatment before the age of 4 months. One is tempted to the conclusion that the appearance of lesions in the first three or four weeks of life is indicative of an early and severe fetal infection in which irreparable injury has been done by the time that the child is a few weeks old. One is also tempted to draw the conclusion that the high relative mortality of patients appearing at 3 and 4 months of age is due to the fact that by that time organic changes have taken place which are incompatible with life. The accompanying photomicrograph of the liver of an untreated syphilitic baby, dying at 4 months, is corroborative of that theory. It shows fibrosis of liver; pressure atrophy and necrosis of liver cords; fibrosis, essentially in the sinusoids; a slight attempt at regeneration and proliferation of the bile ducts, and few mitoses.

INFLUENCE OF ARSENICAL THERAPY

Early in 1915, we began to use neo-arsphenamine intravenously, feeling our way along to a technic not much unlike that reported from other hospitals. At the same time, the care of syphilitic babies tended to become less haphazard and to be concentrated into the hands of one man. The difficulties of that procedure were enormous. At that time, every hospital looked on a syphilitic baby with the same welcome affection as a measles or smallpox patient, and made every effort to exclude him; and if he was inadvertently admitted, he was incontinently discharged as soon as the diagnosis became known. Therefore, the cases were treated in the Children's Hospital outpatient

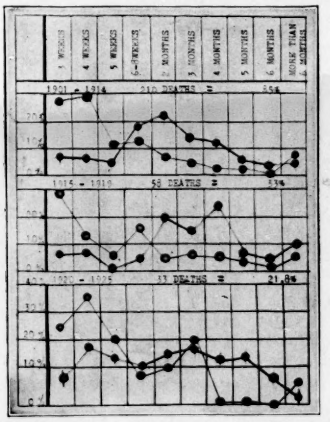

Fig. 1.—Relation of age at onset of syphilis to mortality (solid dots) and age at beginning of treatment to mortality (crossed dots).

department as they happened to come along. This required waiting for each Wassermann set to be boiled separately; waiting for the solution of neo-arsphenamine to come up from the laboratory, and waiting for the already overworked nurse to find time to come in and help hold the baby. Such waiting was very discouraging to mothers. Our several deaths and many severe reactions frightened them; and the lack of an adequate follow-up system allowed many cases to be "lost." Owing to the chaotic conditions of this period and the fact that our personnel was extremely small on account of the war, it was impossible to establish the contact between mothers and physicians which produces the confidence and understanding that results in cooperation on their part.

Late in 1919, the syphilis clinic was organized along the following lines: A special day was set apart on which known syphilitic patients were to report in a separate room of the outpatient department. On that day, the chief of the syphilitic clinic is on duty, and devotes all his time to this clinic. He has one, at least,

and, if especially fortunate, two, assistants; a special nurse, and a volunteer assistant clerk, who is under the direction of the social service department. The sterilizing apparatus and material for making solutions are on tables conveniently adjoining the patient's table. The patients come in one at a time from their special waiting room, so that they are alone in the treatment room. A careful physical examination is made at each visit, the baby's feeding looked after with great care, and any superimposed infection attended to. Every effort is made to obtain the confidence and cooperation of the mother, and it is explained to her that she must not only try to get this particular baby cured but must also get herself cured for the sake of and in the promise of perfectly well babies in the future. Both parents are conducted to other hospitals for treatment of their syphilis. Record is made at each visit of the patient's weight, general condition and any other pertinent facts, and on a specially ruled card are recorded the facts summarizing the syphilitic phase of this case such as

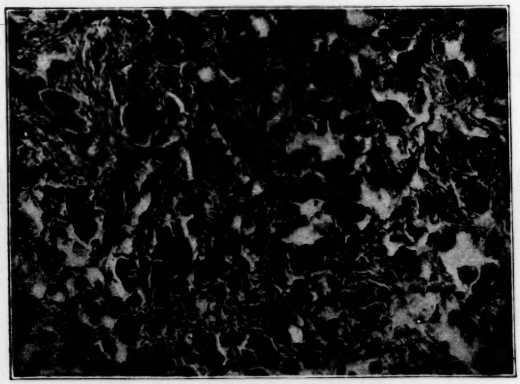

Fig. 2.—Section of liver of untreated syphilitic baby dying at 4 months.

dosage or Wassermann reaction. Under this practice, mothers appear to be much more willing to continue to bring their children for treatment over long periods, which gives us an opportunity to take care of the patient's general welfare as well as its syphilis. It is not too surprising, therefore, that the mortality and morbidity for this period have been further reduced to 21.5 and 35 per cent, respectively.

A tabulation representing the living patients in relation to their age at the time of appearing for treatment shows some rather startling features. This tabulation may well be called their expectation of life. In the first group (1901-1914), expectation of life at 3 weeks was zero and increased slowly until at from 6 to 8 weeks it was 7.2 per cent, thereafter decreasing rapidly to zero again at 5 and 6 months. In patients appearing at later than 6 months there was an increase to 0.12 per cent, which I attempted to explain on the ground that these children were tough enough, or had a mild enough infection to enable them to live through the first six months or more. The second group (1915-1919) shows hardly any betterment at from 3 to 4 weeks, but rises rapidly to 22.8 per cent at from 6 to 8 weeks, and then decreases rapidly to 1 per cent at 5 months and a fraction of 1 per cent at 6 months and later. The third group (1920-1925) fails to show much of any improvement at 3 and 4 weeks, but rises rapidly to 31 per cent at from 6 to 8 weeks, and again falls rapidly to 2 per cent at 4 months, a fraction at 5 and 6 months, and 6 per cent at later than 6 months.

It is obvious that no change in method of handling has made any real difference in the mortality of children appearing for treatment as early as 4 weeks or as late as 4 months. It is equally obvious that a tremendous change for the better has taken place in those children appearing at from 5 weeks to 2 months of age.

SPECIAL STUDY OF THE INFLUENCE OF SULPHARSPHENAMINE

In August, 1923, at the request of the venereal division of the Massachusetts Department of Public Health, I agreed to give sulpharsphenamine alone for a short time to a few of our early patients. The immediate results were so surprisingly good, the ease, convenience and painlessness of administration so striking, and the absence of any general reaction whatever so impressive, that we have continued to use this agent alone in sixty-seven of our subsequent cases. Our usual program is the weekly intramuscular injection of from 10 to 20 mg. per pound of body weight, in 10 per cent concentration, for twelve doses; then a month's vacation followed by the Wassermann test. If the Wassermann reaction is negative, the series is repeated at one-half the corresponding dose of the first series. If positive, the series is repeated at one and one-half times the corresponding dose of the previous series. So far, nearly every early case has become negative at the end of the first series and remained so through the two and one-half year period of observation to date. Every early case in which the patient appeared for treatment under 3 months old, which has been positive at the end of the first series, has become negative at the end of the second and remained so to date. The influence of sulpharsphenamine on the old and latent cases, many of which have been under treatment with neo-arsphenamine for more than three years and were still positive, has been surprisingly good. More than 50 per cent of these patients have received more than thirty-six doses and the reaction has become negative. None have yet become negative in which less than thirty-six doses have been given. A startling result in relation to the central nervous system has become apparent, as compared with the earlier groups of cases. In the first group, the percentage of cases developing central nervous system manifestations, while under treatment, was 10 plus per cent, and in the second, 4 per cent. The third group has to date developed not one single case of central nervous system syphilis while under treatment with sulpharsphenamine.

It is interesting to note what evidence we find of the comparative effectiveness of mercury, neo-arsphenamine and sulpharsphenamine. It seems to me that a fair basis of comparison lies in the time of the disappearance of various lesions under treatment with these agents. We have written, photographic and roentgen-ray evidence that lesions of the skin, bones and viscera

may develop, or if already developed may become much worse and more diffuse during long periods of administration of mercury. For instance, we have a photograph showing skin lesions that developed at the end of three weeks of mercury, and increased in extent and severity for three weeks more. Again, we have roentgen-ray films showing the development and diffusion of periosteal lesions under mercury for three months, these lesions completely disappearing at the end of three weeks under sulpharsphenamine. Again, we have roentgen-ray films of a baby, aged 5 weeks at admission, showing tremendous periostitis and erosion at the metaphysis, resulting in dislocation of the epiphysis, almost completely healed after five doses of sulpharsphenamine. On the other hand, we have roentgen-ray films showing gummas of the bones in late cases which have been under treatment for from two to two and one-half years, as yet not completely healed. Table 3 is a compact summary of all our evidence.

TABLE 3.—*Comparative Effectiveness of Mercury, Neo-Arsphenamine and Sulpharsphenamine as Shown by Time of Disappearance of Lesions*

Early	Skin	Viscera	Bones	Late	Skin	Viscera	Bones
Mercury.	6 weeks to 6 mos.	3 mos. to 6 mos.	3 mos. to 6 mos.+	.....	3 weeks to 6 mos.	6 mos.+	Years +
Neo-arsphenamine	1-2 weeks	2-3 weeks	2-4 mos.		3 weeks	5-8 weeks	Years +
Sulph-arsphenamine	1-3 weeks	2-4 weeks	3 weeks to 2 mos.		2-4 weeks	2-4 mos	Years +

IMPORTANCE OF EARLY RECOGNITION AND EARLY INAUGURATION OF EFFECTIVE TREATMENT

It is perfectly obvious that the factors of arsenic, Wassermann reaction, organized clinic and social service have caused a tremendous reduction in mortality and morbidity, but only at what appears to be a sort of critical period; namely, between the ages of 5 weeks and 2 months, or a trifle over. It is equally obvious that the cases appearing for treatment much before or much after this period have obtained very little corresponding reduction. It is apparent, therefore, that we must develop a new and more effective method of treatment on the very early cases; that we must disregard a negative Wassermann reaction and rely on history and careful physical examination for diagnosis and, consequently, early treatment, in time to get our patients to come in for treatment within the limits of this critical period. Our failure in the very early and later cases does not appear to have any immediate remedy, except in prevention. It is a matter of common knowledge that a very little treatment during pregnancy will allow the fetus to be born at full term, possibly nonsyphilitic, but more usually presenting lesions within the time limits of the critical period. It is also an accepted fact that most syphilitic mothers, treated adequately during their pregnancy, give birth to nonsyphilitic children. Fourteen of the forty-seven families now being followed by our social service have now gone through pregnancy and produced thirteen nonsyphilitic and only one syphilitic baby. Dr. Jackson tells me that since the inauguration of the Wassermann test and the treatment of positive mothers as a routine in the pregnancy clinic at the Boston Lying-In Hospital, the incidence of recorded congenital syphilis has been reduced by at least 50 per cent. It seems to me that this measure offers the most effective means of taking care of that group of babies whose lesions appear before the critical period, and whose mortality is still tremendous.

FURTHER PREVENTIVE MEASURES

It is improbable that public morality will undergo any radical change during our lifetime. It is improbable that the number of illegitimates (among whom the incidence of congenital syphilis is very high) will undergo any material reduction. It is probable, however, that a more complete understanding of the functions of sex, and of the dangers from venereal disease, as explained by mothers to daughters and fathers to sons, may effect a considerable reduction in the incidence of adolescent syphilis and its consequent congenital syphilis. In the possibilities of the law, however, we have opportunity for reaching in the most effective way the greatest number of congenital syphilitic patients, that is, babies born in wedlock of syphilitic parents, through the requirement from both parties of a negative Wassermann reaction as a condition to obtaining the marriage license.

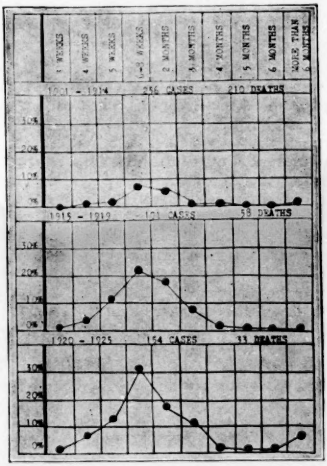

Fig. 3.—Expectation of life in relation to age at beginning of treatment of syphilis.

CONCLUSIONS

1. The fetal and infantile mortality and morbidity from congenital syphilis should make it a subject of importance in our work.

2. The Wassermann reaction, the development of arsenical therapy, the specially organized clinic and the social service have combined to effect a satisfactory reduction in mortality and morbidity, provided treatment is instituted during the critical period of from 5 weeks to 2 months.

3. The foregoing factors have had very little effect on cases appearing for treatment much before or much after this period.

4. More effective treatment for the very early case must be developed, or its prevention must be obtained through treatment of pregnant mothers.

5. Sulpharsphenamine, intramuscularly, appears to be nearly as effective as neo-arsphenamine, intravenously, in causing disappearance of lesions and serologic reversals in early cases. It appears to be as effective in causing the lesions to disappear in late cases and more effective in reversing the serum.

6. It is possible that a definite reduction in the incidence of congenital syphilis may be brought about through educational and legal measures.

25 Bay State Road.

THE COLLATERAL CIRCULATION IN THROMBO-ANGIITIS OBLITERANS

AN INDICATION FOR LIGATION OF THE FEMORAL ARTERY JUST DISTAL TO THE PROFUNDA

DEAN LEWIS, M.D.
AND
F. L. REICHERT, M.D.
BALTIMORE

Roentgenograms of the vessels of the extremities injected with bismuth oxychloride after amputation indicate that the changes in the vessels leading to gangrene vary considerably. The differences in the collateral circulation indicate that different procedures may be employed to advantage in the treatment of some of these lesions, especially of thrombo-angiitis obliterans.

Meleney and Miller,[1] in 1924, injected the vessels of the legs of Chinese, which had been amputated because of gangrene following a vascular lesion in every way similar to thrombo-angiitis obliterans observed in this country. Reichert, two years before this publication, had noted similar changes. His results were, however, not published. A roentgenogram of the injected vessels indicates the loss of the normal arrangement of the blood vessels, and in the main vessels patchy defects, indicating almost complete obliteration of the lumen of the vessel at some points. The most striking observation in these cases, which seems to be constant, is the establishment of an extensive collateral circulation, in which apparently the smaller vessels are principally concerned. In stereoscopic plates, numerous small arterioles may be seen which extend even to the line of gangrene. These vessels are visualized by injecting Hill's mass [2] of bismuth oxychloride into the popliteal artery under a pressure of about 200 mm. of mercury.

REPORT OF CASES

The following is the history of a patient, the roentgen-ray appearance of whose foot and leg is shown in figure 3 after the vessels were visualized by the injection mass mentioned above:

CASE 1.—J. G., a Russian Jew, aged 45, admitted to Johns Hopkins Hospital, June 18, 1922, and discharged improved, July 6, smoked ten cigarets a day. He had been an active athlete, having boxed, run and wrestled. He served in the Russian army, but developed scurvy. In 1912, the little toe of the right foot became gangrenous. This was amputated in the Johns Hopkins Hospital Dispensary. The foot was supposed to have been badly frostbitten. In 1915, the great toe on the right foot was amputated for gangrene, and in 1916, the remaining toes of the right foot were removed for the same lesion. The blood pressure was: systolic, 120; diastolic, 70. The radial pulses were of equal volume, but small. The vessels were just palpable; the brachial pulses could not be felt. The left dorsalis pedis was just palpable. No pulsation could be felt in the right dorsalis pedis or in the right posterior tibial artery. At the time of admission, the left leg was normal in appearance. On the right side, the first and second toes were gangrenous. In 1917, the fourth left toe became discolored and painful, dry gangrene developing. This toe was amputated at the Hebrew Hospital. At the same time the right leg was amputated above the knee, because of gangrene of the right foot. In the Hebrew Hospital, the left third toe was removed. A small ulcer remained at the base of the second toe. In June, 1921, the left foot became slightly discolored. After rubbing and massage, the color became more normal and remained so until five weeks before admission to Johns Hopkins Hospital. When admitted, the big toe was purplish. The pain had become very severe.

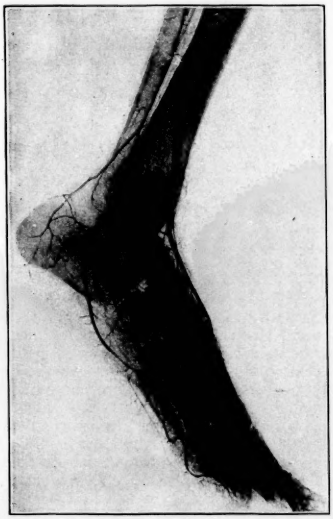

Fig. 1.—Normal arterial tree of leg and foot after the injection into the popliteal artery of bismuth oxychloride.

Examination on admission revealed discoloration of the left foot just above the ankle—purplish on foot, pink at ankle—toes dead, dry, black. Amputation was done, June 20, 1922, through the lower third of the left thigh.

June 29, nine days after operation, the thumb on the right hand became quite painful, and the right radial pulse was no longer palpable.

Abundant collateral circulation is seen in the visualized artery of the left leg and foot. No statement is made regarding the presence of a thrombus of the popliteal artery in this case.

In the following case, the effect of thrombosis of the popliteal artery on gangrene is seen:

CASE 2.—L. B., a man, aged 50, admitted to the Hebrew Hospital, March 8, 1926, in charge of Dr. Bernheim, had been a heavy smoker, using from fifteen to twenty cigarets a day. His left leg was amputated above the knee six years ago for thrombo-angiitis obliterans. Two years ago, in

1. Meleney, F. L., and Miller, G. G.: A Contribution to the Study of Thrombo-Angiitis Obliterans, Ann. Surg. **71**: 976 (May) 1925.
2. Suspension of 17 per cent bismuth oxychloride in 10 per cent acacia (Hill, E. C.: Notes on an Opaque X-Ray Mass, Bull. Johns Hopkins Hosp. **35**: 218 [July] 1924).

February, 1924, the outer side of the right great toe, as well as the little toe, became ulcerated. He was admitted to the Hebrew Hospital, and a periarterial sympathectomy was performed for the relief of a severe pain in the toes. For a year he was relieved; then the pain returned. March 15, 1926, Dr. Bernheim amputated the right thigh above the knee for thrombo-angiitis obliterans.

When the amputated leg was examined, a recent thrombus was found in the popliteal artery. A clot was also found in the vein. These were removed. The leg was injected with Hill's bismuth oxychloride mass, and stereoscopic roentgenograms were taken. From 100 to 120 cc. of this mass was required to fill the vessels, while in an arteriosclerotic case only 30 to 40 cc. is needed. There were numerous collateral vessels throughout the calf, ankle and foot. The main arterial trunks, the plantar arch, and the normal metatarsal arteries were not seen.

CASE 3.—L. G., a Russian Jew, aged 67, admitted to the medical service of Johns Hopkins Hospital, April 6, 1926, and transferred to the surgical service, April 10, had been a baker most of his life, coming to America five years before admission. He smoked from ten to fifteen cigarets a day, and drank tea and coffee moderately. He had had no trouble with his extremities until seven weeks before, when he noticed a feeling of coldness in his right foot. Later, severe pain was noted. This had not been continuous, but came at intervals of four or five minutes and lasted for about the same length of time. It persisted throughout the day, and was particularly severe at night. It had been so severe and repeated so often that sleep had been greatly interfered with. There had been some pain and tenderness in the right calf and leg, but the main tenderness was in the right heel. He walked on the ball of the foot, the heel was so painful. An ulcer had developed on the right heel during the past five days.

The blood pressure was: systolic, 195; diastolic, 90. Both feet were cool, but the right foot and leg were cooler than the left. There was a bluish-red discoloration of the right foot, which was accentuated when the foot hung down. The same discoloration of the left foot was noted. There were varicose veins of both legs, most marked on the right. These were tortuous. Some were thrombosed.

The pain had been so severe that bromides and paraldehyde had been required. The patient had disturbed the ward at night because of the pain.

The femoral artery was evidently occluded by a thrombus, for it could be felt as a cord in Scarpa's triangle.

April 10, the femoral artery was exposed just distal to the profunda femoris. The artery was ligated, two ligatures being placed about an inch apart, and the intermediate segment removed. A recent clot was found in the lumen of the artery. The intima of the artery seemed fairly normal. The femoral vein was palpated but not exposed. It appeared to be free of a thrombus. The wall of the artery was injected and adherent to the perivascular sheath.

No signs of gangrene followed ligation of the artery, and the pain subsided.

The development of the extensive collateral circulation involving particularly the smaller vessels is distinctive of thrombo-angiitis obliterans. The slow progress of the disease involving primarily the distal vessels permits of the development of this rather extensive collateral circulation. In the second case, we believe that we are justified in thinking that the gangrene was dependent on the extension of the process to the popliteal artery, leading to thrombus formation, for the clot that was removed from the popliteal artery seemed to be recent. In the third case, giving a history of seven weeks without any evidence of gangrene, except the small erosion on the heel, the thrombus was of recent origin. Thrombus formation in the femoral artery, occurring at the favorable site for collateral circulation to develop, may account for the absence of gangrene. The site of the thrombus undoubtedly accounts for variations in the clinical courses in these cases. In the ascending form, thrombus formation extending to the popliteal artery would probably lead to gangrene. In a descending form, the thrombus first occurring in the femoral artery below the origin of the profunda femoris would hasten the development of a collateral circulation, which might be sufficient to maintain the nutrition of the toes and feet, even if the popliteal artery later became occluded.

Being associated with the development of such a marked collateral circulation, the problem in thrombo-angiitis obliterans would seem to be to employ some procedure which would force or stimulate the development of such an extensive collateral circulation that this would keep ahead of the extension of the disease process to the popliteal artery. We believe that ligation of the femoral artery just below the profunda is indicated, for in this way the development of this collateral circulation would be favored. If such a collateral circulation developed, the extension of the process to the popliteal artery would interfere little, if at all, with the circulation already developed in the lower part of the foot.

Fig. 2.—Arterial tree of leg and foot after injection of the popliteal artery with bismuth oxychloride; arteriosclerotic gangrene.

Meleney and Miller have recognized the importance of the collateral circulation. They say that, if the disease continues instead of subsiding or coming to a standstill, a contest develops between two forces, blockage of the vessels on the one hand and collateral blood vessel development on the other. There is a limit to the speed with which collateral circulation can develop. At present one can only guess what it is that limits the

speed of the disease process; but the outcome is determined by the relative speed of the two processes. After an equilibrium has been established following the first attack, if a second attack comes on or a dormant process becomes active again, the contest is renewed, the margin of safety is narrower, the potential capacity of a collateral circulation is less, and gangrene is more likely to develop than during the first attack.

Fig. 3 (case 1).—Collateral circulation in the foot seen after injection of the popliteal artery in a case of thrombo-angiitis obliterans.

That the disease process does not interfere with the development of a collateral circulation is indicated by visualization of the vessels that require much more injection mass than in the cases of arteriosclerotic gangrene. The blood pressure is evidently sufficient in these cases to aid in the development of a collateral circulation.

The cause of the pain in these cases has been variously interpreted. Meleney and Miller found in almost one half of their cases occlusion of the nutrient arteries in the large nerves. Mural thrombi were found in some of these cases. In every case in which the vessels to the nerves were occluded there was severe pain, enough to keep the patient awake at night. Pain apparently of equal severity was sometimes present when no occlusion was found. No degeneration of the nerves was found. Clinically, paralysis and anesthesia are rarely noted in these cases. Buerger gives as a possible explanation of the pain a general fibrosis around the entire vessel nerve cord.

There are certain clinical features about the pain, especially that observed in the early cases of thrombo-angiitis obliterans, which suggest arterial spasm. Pain coming on after exertion and disappearing after rest certainly is suggestive of spasm and may be quite comparable to that associated with angina pectoris. The apparently complete relief of pain following ligation of the femoral artery is quite suggestive. Rest in bed cannot be regarded as the sole cause of relief of pain in the case in which the artery was ligated, for the patient had been in bed, without relief, for some days preceding the ligation. The ligation throws out of function an artery that is inflamed and would prevent the canalization of thrombi, the lumen eventually becoming completely occluded. Spasm could not involve simultaneously all the vessels entering into the collateral circulation.

Roentgenograms of vessels in thrombo-angiitis obliterans injected with bismuth oxychloride reveal an extensive collateral circulation, and indicate that gangrene in these cases is due to the inability of the collateral circulation to keep ahead of the advancing thrombus. An attempt may be made to hasten the development of a collateral circulation by division of the femoral artery just distal to the origin of the profunda femoris. Division of this artery throws out of function the principal arteries involved in the chronic inflammatory process. That thrombo-angiitis obliterans does not interfere with the development of a collateral circulation is indicated by visualization of vessels in these cases.[3]

The early and practically complete relief from pain following division of the femoral artery (as in case 3)

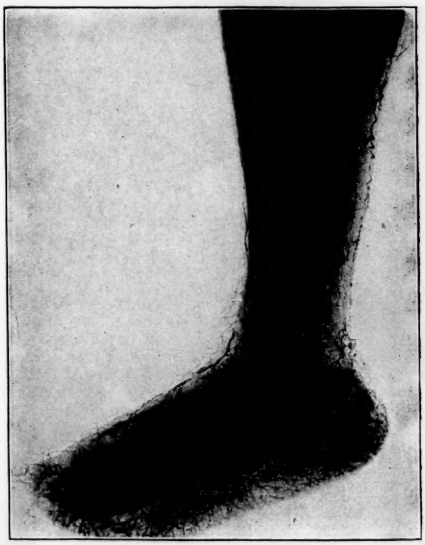

Fig. 4 (case 2).—Collateral circulation in leg and foot in a case of thrombo-angiitis obliterans: Gangrene of the toes occurred; a recent thrombus was found in the popliteal artery; this had to be removed before the injection was made; it seems probable that the gangrene was coincident with the extension of the thrombus into the popliteal artery.

suggests that spasm of the artery may be an important factor in causing pain, and that throwing out of function of the arteries principally involved in this process may be an important factor in relief of pain.

3. The patient in whom the artery was ligated and divided has been recently examined. While he has some pain, it is not so severe, the foot looks better, and the small gangrenous area on the heel has improved.

POSTENCEPHALITIC OBESITY

REPORT OF CASES *

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Recently there have come under my observation four cases in which a rapid increase in weight was associated with the neurologic evidence of epidemic encephalitis. In these and in several similar cases reported in the foreign literature, the history of encephalitis was so closely related chronologically to the onset of the metabolic disturbance as clinically to indicate an etiologic relationship.

In view of the ease with which such cases may be confused with simple endocrinopathies, and since two of the four cases were referred for study as presenting hypopituitarism, it may be appropriate to direct attention to postencephalitic obesity as a clinical entity, and to refer to experimental and pathologic data indicative of its neurogenic basis, so that a more general recognition and study of the condition may lead, not only to its clearer differentiation from endocrinous obesity but also, in some cases, to the retrospective diagnosis of mild, abortive types of the underlying encephalitis.

A rapid increase in weight has not been uncommon among the sequelae or chronic manifestations of this disease.[1] Among eighty-nine cases of encephalitis reported by Grossman,[2] fifteen, or about 17 per cent, showed a weight increase, varying from 15 to 95 pounds (6.8 to 43 Kg.). In 8 per cent of Duncan's [3] eighty-three encephalitic patients the increase in weight was so marked that the patients complained of it. Other cases of postencephalitic obesity have been reported by Stiefler,[4] Livet,[5] Nobécourt,[6] Roger and Aymès,[7] Barkman,[8] Nonne,[9] Sartorelli,[10] Rouquier and Lacombe,[11] Rivet, Rouquès and Jany,[12] Wimmer,[13] and Hall.[14]

The rapidity of the weight increase and the preceding encephalitis were the outstanding clinical features of these cases. Usually the adiposity is of general distribution (fig. 1), although it may be of the so-called "pituitary type," involving chiefly the girdle region and the proximal portions of the extremities. Among other symptoms which, in the absence of pituitary neoplasm, are suggestive of postencephalitic obesity are somnolence, narcolepsy, psychic changes, a labile temperature with occasional febrile periods, rapid fluctuations in weight, with normal or elevated basal metabolism, and the association of neurologic manifestations. These symptoms warrant investigation into the history of the case for evidence of a mild underlying encephalitis.

* Read before the Chicago Neurological Society, Dec. 17, 1925.
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3. Duncan, A. G.: The Sequelae of Encephalitis Lethargica, Brain **47**: 76 (Feb.) 1924.
4. Stiefler, G.: Hypophyseal Obesity as a Sequela in a Case of Lethargic Encephalitis, Monatschr. f. Psychiat. u. Neurol. **50**: 123, 1921.
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6. Nobécourt, P.: Obesity in Epidemic Encephalitis, Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 729 (May 20) 1921.
7. Roger, H., and Aymès, G.: Transitory Obesity in Four Cases of Epidemic Encephalomyelitis with Parkinson's Syndrome, Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 1278 (July 29) 1921.
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12. Rivet, L.; Rouquès, L., and Jany, C.: Adiposogenital Syndrome in Epidemic Encephalitis, Bull. et mém. Soc. méd. d. hôp. de Paris **49**: 311 (Feb. 27) 1925.
13. Wimmer, August: Chronic Epidemic Encephalitis, London, W. Heinemann, 1924, p. 23.
14. Hall, A. J.: Epidemic Encephalitis, New York, William Wood & Co., 1924, p. 132.

REPORT OF CASES

CASE 1.—M. N., a girl, aged 16, was referred for study as having "hypopituitarism." She complained of nervousness and obesity of four years' duration. With the exception of frequent attacks of tonsillitis and an attack of influenza at the age of 10, she was in good health until four years previously, when she experienced a "nervous breakdown." She recalls going home from school one day very weak, sleepy and feverish, with a severe headache and backache. She remained in bed for ten weeks, and slept almost the entire time, except the last two weeks. She could be aroused easily for her meals, but, as soon as she was left alone, she went to sleep again.

After this illness she felt perfectly well and went back to school for more than a month. A bilateral blepharospasm and an intention tremor of the hands then developed. At the same time a definite increase in weight began. Before her illness she weighed about 100 pounds (45 Kg.). During the following year she rapidly gained 40 pounds (18 Kg.), and, in the subsequent two years, she more gradually attained a weight of 166 pounds (75 Kg.). There was no obesity in the family.

Fig. 1 (case 3).—Extreme postencephalitic obesity.

The obesity was generalized, but more marked about the girdle region and the proximal portions of the extremities. The bony structure was properly proportioned. The gait was normal, although the posture was slightly stooped. The skin and hair were normal. The pulse was 108; the temperature 98.2, and respirations, 20. The height was 63 inches (160 cm.) and the weight, 166 pounds, was about 40 per cent above normal. The facial expression was dull and set. Asymmetry was apparent on smiling, the left side being more active. This asymmetry was not present on voluntary contraction of the facial muscles. There was an inconstant bilateral blepharospasm. The left palpebral fissure was smaller than the right. The external ocular movements were normal, and there was no nystagmus. The pupils were equal and regular. They reacted in accommodation, but did not react to light. The thyroid was slightly enlarged. There were no demonstrable abnormalities of the heart, lungs, abdomen or genitalia. There was a constant, coarse, rhythmic tremor of the hands, greatly increased on attempting fine movements. The tendon reflexes were exaggerated. The Babinski reflex and the Romberg sign were negative. There were no sensory changes.

Ophthalmoscopic examination revealed a normal fundus. The intelligence quotient was 96 per cent, but there was a marked emotional instability. The blood and urine were normal; the twenty-four hour output was 900 cc. The blood pressure was 100 mm. systolic and 80 mm. diastolic. The

blood Wassermann reaction was negative. The basal metabolism was normal. Roentgenograms of the sella showed no enlargement. The epiphyseal development corresponded to the chronological age.

The subsequent course was of interest particularly in the development, more than four years after the acute encephalitic manifestations, of attacks of forced conjugate upward movements of the eyes, as recently described by Hohman [15] and by Benton.[16]

CASE 2.—M. N., a woman, aged 22, experienced at the age of 17 a left facial paralysis, associated with drowsiness and headache, and recurring periods of unconsciousness. There were no other symptoms of significance except a rapid increase in weight. Before this illness her weight had been 120 pounds (54 Kg.). Within six months she gained 30 pounds (14 Kg.). At the time of examination she weighed 174 pounds (79 Kg.), which was 30 per cent above the average for her age and height, 65 inches (165 cm.).

In addition to the adiposity, examination revealed a left facial paresis, exaggeration of the left patellar and Achilles reflexes, adiadokokinesis, and cogwheel resistance on movements of the left arm. The eyegrounds, basal metabolism, roentgenograms of the sella turcica, blood Wassermann and spinal fluid were negative.

CASE 3.—B. O., a girl, aged 15, had been very slender until three years previously. She then rapidly gained in weight. Her mother stated that there had been no antecedent illness "except an inability to move the left side of her face for a few weeks." She had since become very dull and sluggish, and would not associate with other children. There were no other significant symptoms.

Examination revealed a generalized obesity; height, 58 inches (140 cm.); weight, 154 pounds (70 Kg.), about 70 per cent above normal. There was a left facial paresis; a constant coarse tremor of the hands, and exaggerated tendon reflexes. Roentgenograms of the sella were normal. Ophthalmoscopic examination revealed normal fundi. The blood Wassermann reaction was negative. Basal metabolism was 12 per cent minus. Blood sugar determinations after ingestion of 122 Gm. of glucose were: zero hour (fasting), 0.105 per cent; one-half hour, 0.130 per cent; one hour, 0.109 per cent; two hours, 0.106 per cent.

CASE 4.—A. B., a boy, aged 16, in the service of Dr. Isadore Pilot at the Cook County Hospital, was apparently normal until, at the age of 13, he developed an extreme drowsiness. During several months he would suddenly fall asleep, and often while eating he would drop his food and even strike his head against the table. Subsequently he was unable to advance in school, although previously he had attained the sixth grade. He became disinterested, untidy and incorrigible. He was brought before the juvenile court because he frequently remained out all night and slept most of the day. There were no other symptoms. His general condition improved during the past year.

With the period of lethargy a rapid increase in weight began, 50 pounds (23 Kg.) being gained the first year. His height was 66 inches (165 cm.), and his weight 190 pounds (87 Kg.), about 50 per cent above the normal. The adiposity was general. The expression was dull and sleepy. There was a slight irregularity of the left pupil, and the patellar reflexes were exaggerated. The genitalia were well developed. The visual fields, sella turcica, blood and spinal fluid were normal. The basal metabolism was 10 per cent minus. The intelligence quotient was 102. Blood sugar determinations after ingestion of 100 Gm. of glucose were: zero hour, 0.094 per cent; one hour, 0.125 per cent; two hours, 0.111 per cent; three hours, 0.075 per cent.

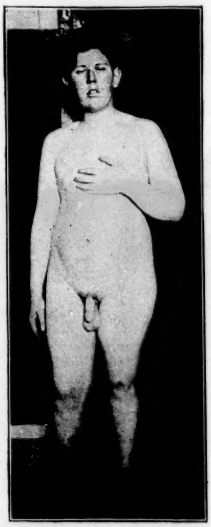

Fig. 2 (case 4).—Postencephalitic obesity.

COMMENT

In these cases a rapid increase in weight followed the acute encephalitic manifestations. That there was an actual etiologic relationship is indicated, not only by reports of similar cases, but also by the experimental development of obesity in dogs after the production of midbrain lesions at the site of predominance of the typical pathologic changes of epidemic encephalitis.

Aschner's [17] experiments on the pituitary gland and the adjacent region, in 1912, led him to conclude that extrapituitary nervous lesions alone may cause some cases of experimental obesity in dogs. Later, Camus and Roussy [18] produced typical adiposogenital dystrophy in dogs by puncture of the optopeduncular area of the midbrain without injury to the hypophysis. These results have more recently been confirmed by Bailey and Bremer,[19] who variously traumatized the midbrain with resultant diabetes and obesity, and demonstrated, at postmortem, the scar of the midbrain lesion and the integrity of the pituitary gland. Although these investigators were interested chiefly in diabetes insipidus, they concluded that lesions of the midbrain in the immediate region of the pituitary stalk, but without injury to the gland itself, caused not only diabetes insipidus, but also rapidly developing obesity.

Since the typical pathologic changes in epidemic encephalitis involve the area of the midbrain that was attacked by these investigators, the rapidly developing obesity of encephalitis appears to be the clinical counterpart of the experimental obesity produced by experimental lesions of the midbrain.

That postencephalitic obesity is on a neurogenic rather than an endocrine basis is, furthermore, in accord with the lack of significant pituitary pathologic change demonstrable on postmortem examination in cases of epidemic encephalitis. Marinesco,[20] Marie and Trétiakoff,[21] Howe,[22] Levy, Economo, and others,[23] agree that the postmortem evidence of organic pituitary injury in epidemic encephalitis is negligible.

That the hypophysis may be functionally impaired, secondary to a lesion of a controlling midbrain center, or that the integrity of this center or tract is necessary in order that a pituitary secretion may properly exert its influence, remain as possibilities. In either event,

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22. Howe, H. S.: Acute Epidemic Encephalitis; Association for Research in Nervous and Mental Diseases, New York, Paul B. Hoeber, p. 185.

23. Quoted by Wimmer (footnote 13, p. 291).

the pituitary body appears not to be the primary factor in the disturbance, if, indeed, it be a factor at all.

Clinically, the resemblance between some cases of post-encephalitic obesity and cases that have been described as examples of hypopituitarism is sufficiently close to lead to confusion in differential diagnosis. Among others, Cushing,[24] Engelbach,[25] Falta,[26] and Lisser [27] have reported cases that are characterized by the sudden development of obesity associated with various neurologic symptoms. Headache, dizziness and somnolence, paralysis and epileptiform seizures, and visual disturbances, including diplopia, are among the acute nervous symptoms. Falta [28] records, as an example of hypophysial dystrophy, a case of rapidly developing obesity associated with impotence, severe headache, vomiting, tremor of the hands, and diplopia, although the sella was normal. Case 12 of Lisser's series, showing hypopituitarism, presented an acute onset with paresis of the lower extremities, drowsiness, headache, and rapid increase in weight. Engelbach [29] also refers to the association of inversion of the sleep rhythm, extreme nervous instability, paroxysmal dyspnea and syncopal attacks with some of his cases of obesity.

These symptoms are now recognized as being typical manifestations of the acute and chronic forms of epidemic encephalitis. Since the obesity that follows encephalitis may resemble the type attributed to the pituitary gland, cases of rapidly developing obesity require careful analysis of the onset of the metabolic disturbance, lest a mild encephalitis be misinterpreted as a "simple endocrinopathy." In postencephalitic obesity, as well as in parkinsonism, the initial acute manifestations may be so mild that only by specific investigation can the encephalitic basis of such cases be determined in retrospect.

SUMMARY

1. Clinically, epidemic encephalitis is followed by rapidly developing obesity in a sufficient number of cases to indicate a causal relationship.

2. Experimentally, there is evidence confirmatory of this clinical observation in the production of adiposity in dogs by a localized traumatic encephalitis of the midbrain, which is the site of election of the typical pathologic changes of epidemic encephalitis.

3. In cases of rapidly developing obesity, the anamnesis should be carefully studied to determine a possible encephalitic basis before the obesity is attributed to a simple functional endocrinopathy.

1 Chicago Avenue.

24. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912, case XXXV.
25. Engelbach, William: Disorders of the Pituitary Gland, in Tice's Practice of Medicine, Hagerstown, Md., W. F. Prior Company, **8**, 1922, cases 11, 15 and 23.
26. Falta, W.: Endocrine Diseases, Philadelphia, P. Blakiston's Son & Co., 1923, cases XXXV, XXXVII and XLI.
27. Lisser, H.: Absence of the Prostate with Endocrine Diseases, Notably Hypopituitarism, **7**: 225, 1923, cases 11 and 12.
28. Footnote 26, case XXXV.
29. Footnote 25, p. 538.

Psychanalysis.—What is in dispute is Freud's insistence that psychanalysis must be carried back to the patient's early memories of from 2 to 5 years of age. This, Freud maintains, is essential for true psychanalysis. It is essential because of Freud's peculiar views concerning sexual development and the relation of sexual activity to the psychoneuroses. But we must recognize at the outset that other psychotherapists claim equal success in their treatment without extending their analysis so far backward, and that they are wholly unable to accept Freud's views as to the invariable responsibility of infantile sexual conflicts and sexual maldevelopments for the psychoneuroses.—Myers, C. S., *Lancet* **1**:1184 (June 19) 1926.

INFLUENCE OF THE SACROTUBEROUS AND SACROSPINOUS LIGAMENTS

IN LIMITING MOVEMENTS AT THE SACRO-ILIAC JOINT *

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The sacro-iliac joint is now generally regarded as a diarthrosis. The articular surfaces of the sacrum and ilium are covered with thin layers of cartilage, separated by a joint cavity, a narrow cleft, and held together by ligaments collectively forming a capsule very thick posteriorly. Only slight gliding movements are permitted. According to the common teaching, the weight of the trunk, transmitted in large part to the base of the sacrum, causes the latter to tend to rotate on a transverse axis, and because of the oblique position of the sacrum the promontory would tend to move downward and forward and the inferior part of the sacrum to move upward and backward. The sacrotuberous, sacrospinous and posterior sacro-iliac ligaments function in limiting this rotary movement of the sacrum on the iliac bones.

This is the picture of the sacro-iliac articulation given in the textbooks of Quain, von Bardeleben, Poirer and Charpy. The mechanical conceptions are traceable chiefly to von Meyer,[1] who described the rotary movement of the sacrum, determined the position of the axis of rotation, and showed the tendency for the promontory to sink under the pressure of the body weight, and of the restraint put on this rotation by the sacrotuberous and sacrospinous ligaments. The movement of rotation was not studied experimentally by von Meyer. In 1889, Walcher [2] drew attention to the changes in the pelvic conjugates resulting from different positions of the body in women in labor. Exact analysis of the changes was undertaken in 1891 by Gustav Klein,[3] who studied experimentally the effects on the diameters of the pelvis caused by movements of the sacrum at the sacro-iliac joint. Klein located the transverse axis of rotation at a level posterior to the body of the second sacral vertebra and demonstrated slight alterations in the conjugate by raising and lowering the pubis of a pelvis, the sacrum of which was fixed in a vice. In these experiments, all ligaments were retained. Observations on the function of the sacrotuberous and sacropsinous ligaments were not included in the study.

Apparently our conception of the functions of the sacrotuberous and spinous ligaments has been to a considerable extent inferred from the fact of a movable sacro-iliac joint and the points of attachment of these ligaments. In view especially of the surgical interest in the sacro-iliac joint, it seems desirable to collect data on the factors that restrain rotary movement of the sacrum. This paper gives the results of a test made in order to determine the effect of the sacrotuberous and sacrospinous ligaments in limiting such movement.

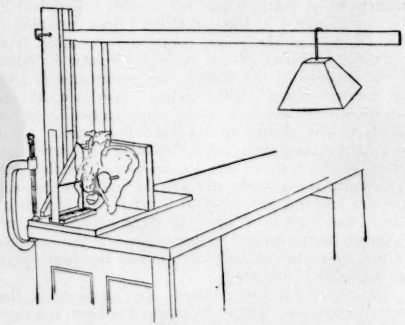
The material used for the experiment was derived from the dissecting room and consisted of a series of

* From the Department of Anatomy, Washington University School of Medicine.

1. Von Meyer, G. H.: Arch. f. Anat. u. Physiol., 1853-1869; Statik und Mechanik des menschlichen Knochengerüstes, Leipzig, 1873; Lehrbuch der Anatomie des Menschen, 1873; Arch. f. Anat. u. Entwicklungsgeschichte, 1878 (the important paper dealing with rotation of the sacrum).
2. Walcher: Centralbl. f. Gynäk., 1889.
3. Klein, Gustav: Ztschr. f. Geburtsh. u. Gynäk., 1891.

specimens prepared from cadavers of known race, sex and age. The series included three females, of 35, 56 and 68 years of age, and twenty-seven males ranging in age between 20 and 83 years. There were twenty-three whites and seven negroes, as may be seen in the accompanying table. Specimens were prepared of the pelvis, lumbar spine and the last three bones of the thoracic spine by the removal of the soft parts, excepting the ligaments, which were carefully preserved intact. The resulting preparation was in one piece, flexible and clean for observation. Precautions were taken to prevent drying, and no specimen was used that had become dry. The cadavers from which the specimens were made had been preserved with a mixture of phenol (carbolic acid), alcohol and glycerin injected in the usual way into the arteries. As a control, a fresh specimen from an unembalmed body was made and subjected to the same tests as were the specimens in the series. On the completion of the experiment, the specimens were skeletonized and carefully inspected for evidence of ankylosis. Cases of ankylosis were taken out of the series.

An apparatus consisting of a wooden platform and an upright was constructed. When in use it was clamped to a table and so maintained immovable. The pelvis was posed in the normal standing position and securely bolted to the upright. A lever placed above and carrying a sliding weight gave any desired pressure in the downward direction on the sacrum through the superimposed vertebral column. In order to demonstrate the presence or absence of movement of the lower end of the sacrum, an indicator consisting of a piece of straight steel wire was fixed to the lower part of the sacrum in the middle line and made to extend below the last segment of the sacrum. Beneath the point of the indicator, a millimeter scale was set. A second



Apparatus with specimen in place.

indicator projected horizontally backward from the lower segment of the sacrum, and with a vertically placed scale showed a small degree of downward displacement of the sacrum when under pressure. The indicators gave a definite demonstration of the presence and direction of movement of the inferior segments of the sacrum when the base of the sacrum was subjected to downward pressure.

The accompanying illustration shows the apparatus with the specimen in place; the ischia rest on the platform, and the anterior-superior spines and symphysis pubis are in contact with the upright. The pelvis is held securely in place by means of two bolts, which hook around the iliac notches. The bolts pass through the upright in front and by means of thumb screws hold the pelvis immovable.

With the specimen in position, a force of 75 Kg. was applied by means of the lever and weight to the vertebral column, this amount being constant for all the specimens. Before the force was applied the readings

Results of Experiment

Number	Age	Sex and Race*	Backward Excursion of Indicator in Millimeters with Promontory under Pressure of 75 Kg.			
			Ligaments Severed			
			Ligaments Intact	At the Time	½ Hour Later	Total Excursion
1	74	♂ W	0	1.0	1.5	1.5
2	49	♂ W	0	1.0	1.5	1.5
3	50-60	♂ W	0	1.0	1.5	1.5
4	40-50	♂ W	0	0.5	1.0	1.0
5	38	♂ W	0	1.0	2.0	2.0
6	74	♂ W	0	0.5	0.5	0.5
7	60	♂ W	0	0.5	1.0	1.0
8	62	♂ W	0	0.5	1.0	1.0
9	83	♂ W	0	2.0	2.0	2.0
10	41	♂ W	0	1.5	2.0	2.0
11	55	♂ W	0	1.0	1.5	1.5
12	55	♂ W	0	0.5	1.0	1.0
13	57	♂ W	0	0	0	0
14	45	♂ W	0	1.0	1.5	1.5
15	55	♂ W	0	0	0	0
16	35	♂ W	0	0	0.5	0.5
17	67	♂ W	0	0.5	1.0	1.0
18	73	♂ W	0	0.5	1.0	1.0
19	45	♂ W	0	0.5	0.5	0.5
20	75	♂ W	0	0.5	1.5	1.5
21	68	♀ W	0	1.0	1.5	1.5
22	56	♀ W	0	0.5	0.5	0.5
23	42	♂ B	0	1.5	2.5	2.5
24	52	♂ B	0	1.0	1.0	1.0
25	60-70	♂ B	0	1.0	1.5	1.5
26	24	♂ B	0	0.5	1.0	1.0
27	35	♀ B	0	0	0	0
28	20	♂ B	0	0	0	0
29	21	♂ B	0	1.0	1.0	1.0
30	50-60	♂ W	0	1.5	1.5	1.5

* W, white; B, black; ♂, male; ♀, female.

of the indicators were taken to ascertain whether movement had taken place before the ligaments were severed. The force having been applied and allowed to act for fifteen minutes, a second reading was taken. It was found that no movement took place prior to cutting the ligaments. The sacrospinous and sacrotuberous ligaments were then severed on both sides, and the positions of the indicators were immediately noted. The force was continued for one-half hour longer, and the position of the indicator was again observed.

The table presents the results obtained by this experiment.

RESULTS OBTAINED

The experiment has shown that in 86 + per cent of the pelves tested, the sacrum was movable. The degree of mobility at the sacro-iliac joint is lower than that obtained in the experiments of Klein and found in the study of Brooke.[4] Under a pressure of 75 Kg. no movement was observed before the ligaments were cut, and only slight movement was recorded after cutting. This relatively lessened mobility is probably partly the result of some fixation of the ligaments by the injection fluid; but that this factor is not the only one is witnessed by the laxity of ligaments generally throughout the body. That male specimens composed 90 per cent of the series may affect the question.

A study of the table shows that backward movement of the lower part of the sacrum on the iliac bones takes place under downward pressure of 75 Kg. transmitted on the base of the sacrum. In four specimens, a very slight backward movement (under 0.5 mm.) was observed before the ligaments were cut, and since it was certainly caused by the settling of the pelvis as a whole, it has been disregarded in the calculation.

4. Brooke: J. Anat. **58**, 1924.

The total range of movement, which included movement taking place immediately after severing the ligaments and any additional movement during the next half hour, averages for the thirty specimens 1.1 mm.

The control specimen showed a backward movement of the indicator over a total range of 1.5 mm. The average rotation for the thirty specimens taking place immediately after severing the ligaments (first reading) was 0.73 mm. The average amount of rotation one-half hour after the ligaments were severed (second reading) was 0.36 mm.

The second indicator, which extended horizontally backward from the lower segments of the sacrum, showed that a slight downward displacement occurred after the force was applied; therefore, a combination of two movements resulted under the application of force: the one a downward displacement, the other a backward excursion of the lower part of the sacrum.

SUMMARY

The experiment has shown that in thirty recent specimens of the pelvis and lower spine, the former fixed upright and the latter under pressure of 75 Kg.: (1) with the sacrotuberous and sacrospinous ligaments intact, no backward movement of the lower part of the sacrum occurred; (2) when these ligaments were severed, a slight backward movement of this part of the sacrum occurred in every case; (3) a tendency to a slight increase in range of backward movement was correlated with increase in age.

CONCLUSION

The test as described indicates that the sacrotuberous and sacrospinous ligaments function and are efficient in limiting the backward movement of the lower end of the sacrum only over a very short range; fixation of the sacrum beyond this short range depends on agencies other than these two pairs of ligaments.

FUNCTION OF LIVER IN RELATION TO OPERATION ON GALLBLADDER AND DUCTS*

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The peculiar menace that attends operations on the gallbladder and particularly operations on the common duct, because of the possible resultant interference with the function of the liver, is a constant challenge to the surgeon, who must repeatedly review both the immediate and the remote results of operations on these structures, that he may develop methods which will lead to the utmost conservation of the liver function.

Of prime importance is the decision in each individual case as to whether the gallbladder shall be excised or drained. Dr. W. J. Mayo led the movement toward excision instead of drainage to the general advantage of the patient. In certain cases, however, cholecystectomy is definitely contraindicated. These cases are defined by Moynihan as follows:

> Broadly speaking, cholecystotomy will be demanded where there are the acute infective conditions for which instant relief is necessary and in the patients whose powers of withstanding the shock of any detailed operative procedure are small. That surgeon will have the best results who does not always follow any method, but, taking a just estimate of his patient's powers, chooses that measure of relief which seems to him, in each case, to be the best, and is the one in the practice of which he is the most expert. This is more especially the case in gallstone surgery, for so many conditions, each one a menace to the patient's life or comfort, may be present at the same time. A stone in the ampulla, infective cholangeitis, cholecystitis with ulceration of stones into the liver, for example, are not infrequently present at the same time. For the gallbladder condition alone, cholecystectomy would be correct. But whether, in such circumstances, it should be done in the presence of the other conditions will depend on the patient's condition, the difficulties or the ease of that particular operation, the surgeon's former experience, and so forth.

My associates in the Cleveland Clinic and I have records of 1,682 operations on the gallbladder, including 786 in which drainage was done and 740 excisions of the gallbladder. On the whole, the end results in cases in which drainage was done have not been as satisfactory as the end results in the cases in which the gallbladder was excised. On the other hand, if the immediate mortality and end results of a series in which excision was done in every case regardless of age, physical state, general health, the presence of an acute infection, the existence of complicating diseases, obesity, high blood pressure, respiratory diseases, cardiorenal diseases, diabetes, etc., could be compared with the immediate mortality and end results of a similar series in which only drainage was done, the difference would not be marked. A cholecystectomy in every case, regardless of the local or the general condition, would inevitably show a higher immediate mortality but better end results than would follow drainage under the same conditions. It seems paradoxical, but it is a fact, that cholecystectomy is safest when the indication for it is least clear. Drainage is safer when the general hazard is most clearly defined. It follows, therefore, that the surgeon must weigh every factor with meticulous accuracy.

OPERATIVE ERRORS

What are the factors that contribute to unfavorable end results?—And no series of cases, however carefully the decision regarding the type of operation be made, is wholly free from them. Aside from the unfavorable end results that are due to faults in technic, the most common error into which the surgeon is liable to fall is that of operating on suspicion in the absence of a well defined pathologic condition. In such cases the unhappy end results parallel those which formerly and even now sometimes follow a gastro-enterostomy or an appendectomy performed as the result of suspicion rather than a well defined pathologic indication; or the replacement of an innocuous retroverted uterus; or the anchoring of a floating kidney on the basis of circumstantial rather than definite evidence; or, as has been pointed out in particular by Judd, the performance of operations on the variant or the neurasthenic because of various chronic illnesses associated with digestive disorders. Such cases as these form no inconsiderable group.

In the case of operations on the gallbladder, this error is being rapidly corrected by the progressive improvement of diagnostic methods. One of the most useful advances in this field has been that contributed by Dr. Evarts Graham through the development of the dye test. By progressively improved technic the roentgenologists are able in many cases to aid in the establish-

* From the Cleveland Clinic.
* Read before the Section on Surgery, General and Abdominal, at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

ment of the diagnosis either by positive evidence on the roentgen-ray film of calculi or of thickened gallbladder walls, or by the no less important indirect evidence, such as deformities of the duodenal cap or the ruling out of other pathologic conditions, such as kidney stones or tumors. Dr. B. H. Nichols of the Cleveland Clinic has made correct diagnoses from the roentgenograms—his findings being confirmed at operation—in 72 per cent of our cases of gallbladder disease. The increasing collaboration between the roentgenologist, the internist and the surgeon, together with laboratory studies of the blood, in particular the examination of the serum of the blood to determine the presence of bile, with the resultant checking up of the negative as well as of the positive evidence, has greatly increased the accuracy of the preoperative diagnosis of gallbladder disease, which now approaches the accuracy of the preoperative diagnosis of gastric and duodenal ulcer.

Another operative error that leads to unfavorable end results is faulty drainage, which may result in adhesions that interfere with important functions. Faulty drainage may create a well rather than a stream; that is, too much fluid may accumulate before it escapes. In consequence, the argument is often advanced against drainage that it retards convalescence and creates considerable later functional disturbance. This error may be largely eliminated by substituting for the up-hill drainage a "gravity drainage" through Morrison's pouch. Morrison's pouch is dependent so that the accumulation of fluids will be avoided and, owing to its position, the resultant adhesions are not at such vulnerable points as those caused by an anterior drain. Moreover, by using this method of drainage, the primary abdominal incision can be closed at once.

Flint and Eisendrath have called attention to the importance of a thorough knowledge of the ill results that follow injuries to the bile ducts, the former in particular having made an elaborate study of the abnormalities in the anatomy of the bile tract and of the bile ducts in particular. To emphasize the importance of the certain identification of the ducts in the course of the operation, Flint makes the statement:

> The commonest blunders committed at the primary operation are (1) leaving the gallbladder, through an inadequate appreciation of the earlier signs of cholecystitis; (2) overlooking a stone in the cystic or common duct; (3) injury to the common or common hepatic duct; (4) injury to an accessory hepatic duct.

In most instances, the surgeon can see clearly whether the common duct is dilated. If it is not dilated, the diagnosis of common duct stones is probably wrong. If it is dilated, the dictum of Kerr should be followed; that is, it should be opened and explored for stones. If the duct is normal in size, if there are stones in the gallbladder, and if there have not been chills, fever or jaundice, then there is no reason for opening the common duct for exploration; but it should be critically examined from one end to the other with the thumb and finger. Not only is there no indication for opening the duct if it is normal in size, but it is bad practice to do so; for not only will the patient not be benefited but he will invariably be harmed and may even pay with his life for the unnecessary procedure.

It should be remembered that a dilated duct is much more easily opened and explored than a common duct of normal size, for the enlarged common duct may be easily incised and explored and readily closed; or if it is deemed well to close it by suture, then its enlarged caliber assures against its being closed by cicatricial contracture as the result of drainage or the repair of operative injury.

OPERATIVE TECHNIC

As for the technic of the cholecystectomy, that, like the choice of the operation itself, can be governed by no fixed rule, except that, in view of a fundamental conception of the importance of liver function, liver function must be conserved. As is markedly demonstrated by Deaver in his clinic, this is accomplished directly by ample exposure, bloodless dissection, clear vision, minimum trauma, minimum anesthesia, optimum temperature; and indirectly by the conservation of the patient's resources as a whole. If the field is amply exposed, if the tissues are never blood stained, if the dissection is sharp, if every important structure, namely, the common duct, the cystic duct, the base of the gallbladder, the cystic artery, are clearly seen and are definitely identified, then it matters little how the gallbladder is removed, although in many instances the gallbladder is best removed from below upward, since the blood vessels may thus be secured earlier and a somewhat drier field maintained.

When the excision of the gallbladder is made from above downward, hemorrhage is best controlled by compressing—not crushing— the base of the gallbladder, including the arteries, with curved forceps, care being taken to avoid the common and hepatic ducts. This approach from above downward is the easiest route to a clear exposure of the arteries and cystic duct, and if the field is handled carefully there is no possibility of injuring the common duct and hepatic vessels. In many cases, however, as stated above, the best direction of the dissection is from below upward. Whichever direction is followed, as clear a dissection of every structure must be made as in an operation for hernia. No accident can happen if the following prime factors are assured: a wide opening through Moynihan's paramedian incision; relaxation of the abdominal walls by regional block; bloodless dissection, and wide exposure of the field by means of the Deaver retractors.

At operation, the surgeon's mind should be directed to the performance of a clearly defined, bloodless, true anatomic dissection, the power of the patient to undergo the operation having been well established in advance. The bad risk patient with gallstones, like the bad risk goiter patient, will have been subjected before operation to a sufficiently prolonged preparation directed to the restoration of the normal clotting time, to the establishment of the normal water balance, to alkalization by means of the subcutaneous infusion of glucose and sodium bicarbonate, to the promotion of the function of the heart and kidneys; while blood transfusion, rest in bed, controlled environment and proper diet will have done their share to widen the margin of safety.

But even when all these measures have been employed in advance of the operation and after the most painstaking operative technic and careful postoperative care, in certain cases the liver function will still fail dramatically after the operation, this failure being evidenced by suppression of the bile or by an excessive secretion of bile of a poor quality, and—of still more ominous significance—by a rapid decline in every function, both mental and physical. It is probable that a biophysical explanation of this dramatic sequel will be found—an explanation that may solve the mystery now surrounding the function of the liver, thus explaining why

failure of the liver with such relentless certainty destroys the organism as a whole.

One biophysical fact regarding liver function has already been established, a fact that has a direct bearing on the conservation of liver function in cases in which, by the back pressure of bile or by long continued gallbladder disease or by some other cause, the function of the liver has been disturbed. It is the thermogenic function of the liver whereby one third of the heat of the organism is produced. By experimental researches in the biophysical laboratories of the Cleveland Clinic, it has been found that the introduction of heat within the abdomen causes an immediate rise not only in the temperature of the liver but also in the temperature of the brain, the rise in the temperature of the brain occurring synchronously with the change in the temperature of the liver. It would follow from this observation that the application of heat to the liver should in a large part counteract the effect of operations on the liver and bile ducts. As a result of our interpretation of this experimental fact, we have been applying heat to the liver by means of diathermy, which we have found to be an ideal method of holding the temperature of the liver at a normal level. One plate of the diathermy apparatus is placed on the lower chest on one side and the other is brought opposite the dome of the liver. The current can thus be continually applied during the operation, and the temperature of the liver and the abdominal viscera can be maintained at or above the normal throughout the operation, regardless of the exposure of the intestines; moreover, the application of the diathermy current during the immediate postoperative hours is of great aid in carrying the patient through that critical period.

As I have stated elsewhere in former papers, a lowered temperature of the liver, and hence impairment of the whole organism, may be induced by ether anesthesia. While this effect may to some extent be counteracted by the application of heat, the best method of protection is to substitute for ether the anesthetic which our researches have shown produces very slight lowering of the liver temperature, namely, nitrous oxide; and in especially bad risk cases not to allow the patient to pass beyond the stage of analgesia, relying principally on regional anesthesia.

By the general plan of management which I have outlined above, plus the application of heat during and after the operation by means of diathermy, our immediate postoperative results have been transformed so that the safety in bad risk operations on the gallbladder and ducts has been apparently doubled.

ABSTRACT OF DISCUSSION

DR. A. S. LOBINGIER, Los Angeles: The function of the liver has become a most important item in those infections heretofore ascribed largely to the gallbladder itself. One of the most important points made is the necessity for careful preparation of the patient to go through the ordeal that is usually necessary in one so infected. Most of these infections are chronic and cover a long period. The changes in the liver are not acute changes, but changes that have been going on for a long time. If we consider this and the correlated changes that occur in other structures of the body, such as the myocardium and the splanchnic musculature, which is made up of the same variety of muscle fiber as the heart, we can explain many of the real difficulties and hazards that confront us when we come to do a cholecystectomy or complicated duct drainage. I approve highly of Dr. Crile's conservatism with respect to the common duct. It is best to do just as little surgery on the common duct as possible. Prolonged drainage of the common duct with the T tube may result in a stricture, a condition we should always try to avoid on account of its embarrassing complications. We have for the last few years been draining the liver by doing a cholecystectomy on the lower portion of the gallbladder from which the mucosa is removed and into which is inserted, about 1 cm. from the common duct, a firm tube, tied in with forty day chromic catgut. Drainage of the liver would not be justified unless we found that there was a hyperemia or an edema of the liver. If the liver is thin edged and normal in appearance, then there is scarcely any reason for prolonged drainage, and, of course, the drainage of the liver itself is justified only in those cases in which there is pathologic evidence of a continued and prolonged chronic infection. There are certain hazards in draining the liver which have been mentioned. If drainage exceeds from 7½ ounces to 9 ounces (225 to 265 cc.) in twenty-four hours, too much water is being withdrawn from the patient. I commend Dr. Crile's ingenious application of diathermy and other measures which will maintain the vitality of the patient, and his insistence that the bad risks in gallbladder and gallduct surgery may become comparatively safe risks if the function of the liver and its pathologic physiology receive the consideration they deserve.

DR. GEORGE W. CRILE, Cleveland: Diathermy is extremely useful during the operation; if the patient is ill afterward, it should be used after the operation at intervals of several hours during the day. Furthermore, in any condition of shock or acute depression, whatever it may be due to, diathermy, by raising the temperature of the body 1 or 2 degrees, increases the internal respiration on which life itself depends.

THE ACTION OF HEPATIC EXTRACT IN HYPERTENSION*

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Few problems in medicine are of greater interest and importance than the present intensive search for the cause and relief of high blood pressure. The constant increase in the life span has brought with it a great increase in the prevalence of diseases of middle age and after—a period during which arterial hypertension is particularly apt to appear.

A generation ago high blood pressure was synonymous with chronic interstitial nephritis, but the extensive clinical and pathologic work of the last twenty-five years has shown that this view is almost certainly incorrect.

High blood pressure, according to von Monakow,[1] is "a symptom which, similar to fever, has no uniform etiology." This observer states further that "lasting increase in blood pressure is always due to abnormal contraction of arterioles" and notes that such contractions may be due to nervous causes having their origin in psychic disturbances, to disturbances in internal secretions, or to poisons possibly of metabolic origin and that, lastly, they may have their origin in pathologic conditions of the kidney.

These views of von Monakow express the belief of many observers and call attention to the complexity of the problem from the standpoint of both etiology and therapy. If high blood pressure is merely a symptom without a uniform causation, we can hardly expect one

* From the Department of Internal Medicine, the University of Kansas School of Medicine.

* Read before the Section on Pharmacology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Von Monakow, P.: Blutdrucksteigerung und Niere Deutsches Arch. f. klin. Med. 132: 129 (Aug.) 1920.

particular form of therapy to be effective in all, or even perhaps in a majority of cases.

PREPARATION OF EXTRACT

In a systematic search for some product of metabolism having a pressor effect, we found that methylguanidine, a normal component of the urine, is capable of producing a marked and prolonged elevation of blood pressure in animals and in man.[2] A further study of the urine in certain cases of arterial hypertension showed a diminished output of guanidine compounds when compared with normal controls,[3] and in two patients suffering from a marked elevation of blood pressure we found a great increase in the excretion of guanidine coincident with a fall in blood pressure.[4] A systematic study of the guanidine content of the blood in patients suffering from arterial hypertension would be of great interest, but at present we have unfortunately no simple or accurate clinical method of making such estimations.

In a series of experiments carried out in the laboratory, we have studied the action of various salts and organ extracts which lower the elevation in blood pressure produced by guanidine compounds. Among the various substances examined, the effects of certain liver extracts were very marked in both reducing and preventing what we may term a guanidine hypertension.[5]

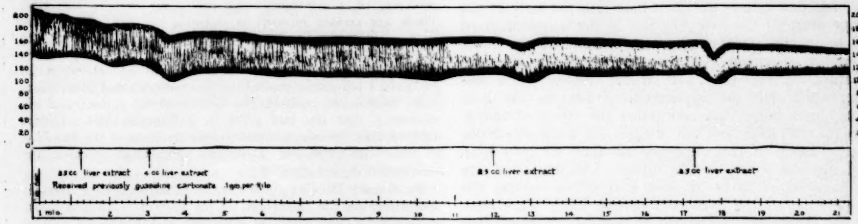
2.5 cc liver extract
4 cc liver extract
Received previously guanidine carbonate 1 gm. per kilo
2.5 cc liver extract
2.5 cc liver extract

Fig. 1.—Effect of liver extract on hypertension due to guanidine carbonate: gradual reduction in pressure to normal.

Similar observations have been made by Macdonald,[6] who noted a marked depressor effect of certain liver extracts in arterial hypertension, and by James and Laughton,[7] and also by James, Laughton and Macallum,[8] who have studied the depressor effects of liver extracts on animals.

The liver extract with which we have worked is prepared by a process of alcoholic fractionation, the depressor substance being thrown down as a precipitate when an alcoholic content of approximately 90 per cent is reached. This precipitate is dissolved in distilled water and is further purified by repeated adjustments of the reaction. The final purified precipitate is dissolved in saline solution, giving a clear, slightly brownish solution, which contains in the concentrations usually employed a nitrogen content of 0.001 per cent.

EFFECTS OF INJECTIONS

It has been known for many years that certain organ extracts have a depressor effect when injected into animals, but such effects have been attributed by many observers to the presence of histamine, choline or peptone in the extracts employed. Because of these observations, it is of primary importance to determine whether the depressor effects of our liver extracts are due to these substances.

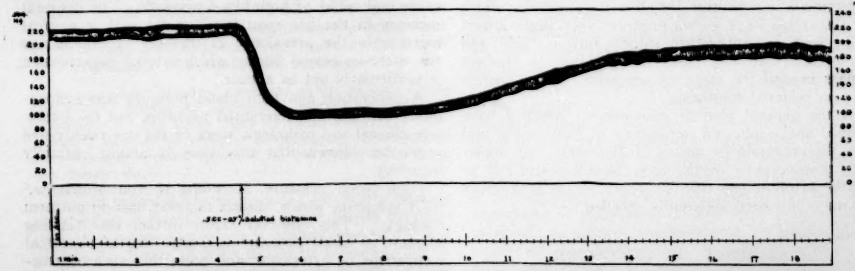

Fig. 2.—Effect of histamine solution on the hypertension produced by injection of 0.1 Gm. per kilogram of methylguanidine sulphate: precipitous fall of blood pressure to normal followed by a gradual rise.

One of the strongest bits of evidence we have that the depressor effect we produce is not due to histamine

2. Major, R. H., and Stephenson, Walter: The Effect of Methyl Guanidine on the Blood Pressure, Bull. Johns Hopkins Hosp. **35**: 140 (May) 1924.

3. Major, R. H.: The Possible Relationship Between Guanidine and High Blood Pressure, Am. J. M. Sc. **170**: 228 (Aug.) 1925.

4. Major, R. H.: The Excretion of Guanidine Bases in Two Cases of Arterial Hypertension with Reduction in Blood Pressure, Bull. Johns Hopkins Hosp. **36**: 357 (May) 1925.

5. Major, R. H.: Observations on the Cause and Treatment of Arterial Hypertension, J. Kansas M. Soc. **25**: 177 (June) 1925.

6. Macdonald, W. J.: Extractives of Liver Possessing Blood Pressure Reducing Properties, Proc. Soc. Exper. Biol. & Med. **22**: 483, 1925; Extractives of Liver Possessing Blood Pressure Reducing Properties, Canad. M. A. J. **15**: 697 (July) 1925.

7. James, A. A., and Laughton, N. B.: The Control of Blood Pressure with Liver Extracts, Canad. M. A. J. **15**: 701 (July) 1925.

8. James, A. A.; Laughton, N. B., and Macallum, A. B.: Studies on the Control of Blood Pressure with Hepatic Extract, Am. J. Physiol. **75**: 392 (Jan.) 1926.

is the type of curve obtained from the injection of liver extract. When we inject it slowly into an animal whose blood pressure has been elevated by methylguanidine, the blood pressure slowly falls to normal but does not reach a subnormal level unless very large doses are employed. This is in marked contrast to the sudden drop in blood pressure which is produced by injecting histamine solution into an animal whose pressure has been elevated by guanidine compounds. While liver extracts, when injected rapidly, may produce a rather rapid fall in pressure, a slower injection over the period of two or three minutes produces a steady and gradual decline in blood pressure to normal (fig. 1).

The behavior of the normal blood pressure to injections of liver extract is in marked contrast to that produced by histamine injections. A normal animal will withstand large doses of the liver extract without any fall in blood pressure, often from fifteen to twenty times the dose necessary to lower to normal an elevation in blood pressure produced by guanidine. Histamine solutions, on the other hand, of sufficient strength to lower the blood pressure produced by guanidine compounds will also depress the normal blood pressure of an animal. Very large doses of concentrated liver extract will lower the normal blood pressure, but their action on normal blood pressure is very feeble when compared with the powerful depressant action of histamine (fig. 2).

Histamine, as is well known, produces contractions of smooth muscle, such as the virgin guinea-pig uterus or intestinal loops. The liver extract with which we have worked produces no contractions of uterine muscle, which we would expect if histamine were its active principle. Stoland [9] has shown that the liver extract not only produces no contraction of the uterine or intestinal muscle preparations but, on the contrary, abolishes or depresses the action of guanidine. If a solution of histamine is added to a preparation made hypertonic with guanidine, the effect of this histamine is to produce an increase in tonicity. Later observations indicate that liver extract abolishes or depresses the action of histamine on smooth muscle.

When aqueous solutions of choline hydrochloride are injected into dogs whose blood pressure has been elevated by guanidine compounds, two types of blood pressure curves are seen. In one group a fall of blood pressure is produced only when toxic or lethal doses are employed, while in the other group a fall to normal takes place gradually. In both types, however, the initial fall in blood pressure, which follows quite suddenly, is followed by a rapid rise in blood pressure, which lasts for several minutes and is succeeded by a fall, not to the normal level but to the previous high level induced by guanidine compounds (fig. 3).

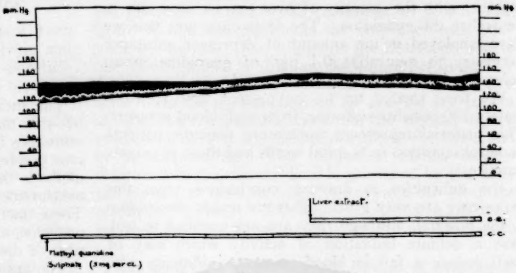

Fig. 4.—Method of standardization. Eight cc. of methylguanidine sulphate solution produced an elevation in blood pressure from 120 to 140 mm. of mercury. When the liver extract was introduced it was found that 1 cc. exactly neutralized 1 cc. of methylguanidine sulphate.

Atropine, according to Modrakowski [10] and Mendel, Underhill and Renshaw,[11] abolishes the effect of choline on blood pressure. We have shown in a previous paper that atropine does not interfere with the ability of our liver extract to lower the elevation in blood pressure produced by guanidine compounds.

Aqueous solutions containing both histamine and choline, when injected into dogs whose blood pressure has been elevated by guanidine compounds, cause a sharp fall in blood pressure to normal or subnormal levels, with a gradual rise in the latter instance to a normal level. Similar curves are obtained when such a solution is injected into normal controls.

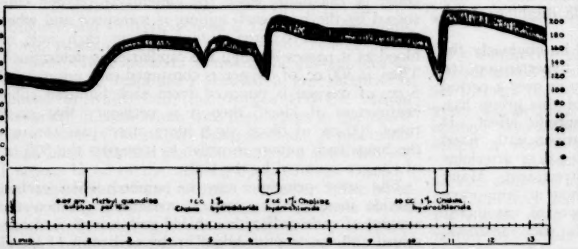

Fig. 3.—Effect of choline hydrochloride on the hypertension due to methylguanidine sulphate: sharp fall followed almost immediately by a gradual rise.

We have given elsewhere the evidence that the depressor effect of the liver extract is not due to peptone.[12] The type of curve obtained with the liver extract differs materially from that seen when injections of Witte's peptone are employed and the sharp fall in blood pressure, the evidences of toxicity and the prolongation of the coagulation time are all lacking. The low nitrogen content of the liver extract and the absence of shock or anaphylactic reactions (when injections are given at time intervals) also make it fairly certain that the depressor effect is not a protein shock effect.

Before employing our liver extract in the treatment of arterial hypertension, it is obviously necessary to

9. Stoland, O. O.: Smooth Muscle Reactions to Guanidine and Liver Extract, Am. J. Physiol. **76**: 213, 1926

10. Modrakowski, G.: Quoted by Popielski, Arch. f. d. ges. Physiol. **128**: 191, 1909.

11. Mendel, L. B.; Underhill, F. P., and Renshaw, R. R.: The Action of Salts of Choline on Arterial Blood Pressure, J. Pharmacol. & Exper. Therap. **3**: 649, 1911-1912.

12. Major, R. H.; Stoland, O. O., and Buikstra, C. R.: Observations on the Effects of Liver Extract in Hypertension Produced by Guanidine Compounds, Bull. Johns Hopkins Hosp. **38**: 112 (Feb.) 1926.

work out a satisfactory method of standardization. A method has been worked out, in collaboration with Dr. G. H. A. Clowes and Mr. E. E. Swanson, which gives an adequate index of the activity of liver extract. This method consists essentially in introducing a dilute solution of methylguanidine sulphate through the femoral vein of a cat or a dog until a definite rise in blood pressure to 20 mm. or more is produced, and then the liver extract is slowly introduced into the other femoral vein until the blood pressure is stabilized. The amount of guanidine solution injected is read off, together with the quantity of liver extract necessary to neutralize the guanidine. The temporary unit that we have employed is the amount of depressor substance necessary to neutralize 0.1 mg. of guanidine in an animal weighing 2.5 kilograms (fig. 4).

We have treated up to the present time approximately 100 patients suffering from high blood pressure. This material represents ambulatory patients, patients under observation in hospital wards and those in private practice.

The difficulties in drawing conclusions from this experience are very great. Patients under observation in the hospital, although they are not confined to bed, have a definite limitation of activity which may of itself induce a fall in blood pressure. Patients who are treated in the outpatient department do not give us the desired opportunity for repeated blood pressure estimations; they are difficult to control and many of them are irregular in their visits or cease their visits from time to time. The patients seen in private practice, in whom many of the most suggestive results have been obtained, have not, as a rule, been subjected to such repeated blood pressure determinations, which weakens conclusions drawn on such a group. They have, however, been the group which, because of greater intelligence and perseverance, has carried out the treatment faithfully. They also had the least evidence of arterial, arteriolar and kidney involvement, and in many instances suffered comparatively little disability from their hypertension.

The most convincing group would be obviously the type that has suffered from arterial hypertension for a long time and whose range of pressure over a period of years is known. The treatment of this group has, as a rule, shown little evidence of specific effect. It is, however, quite possible that such patients with "fixed pressures" have such a degree of arterial or arteriolar change as to make them refractory to treatment. Many such patients also, as is well known, show no temporary response to nitrites or to other powerful vasomotor depressants, a finding that suggests such anatomic changes.

Theoretically, the group of patients who should respond best are those whose hypertension is of brief duration and in whom anatomic alterations have not yet taken place. We have seen many striking and relatively lasting falls of blood pressure in these patients. Such evidence is, however, not convincing, since it is always possible that these falls in blood pressure may be spontaneous and unrelated to treatment. Apparent spontaneous "cures" in arterial hypertension are repeatedly observed.

In many patients treated with liver extract, an improvement in symptoms has been the most striking feature noted. In some instances, the improvement in symptoms has been associated with a fall in blood pressure; in other patients, no such fall in pressure has been noted.

SUMMARY

We still feel, as previously stated,[13] that definite conclusions can be drawn only after a large number of patients have been treated over a long period of time. The evidence at the present time, that the liver extract is effective in certain cases of arterial hypertension, is very suggestive but is not conclusive.

THE MEASUREMENT OF THE CARDIAC OUTPUT IN MAN AND ITS VARIATIONS *

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The measurement of the amount of blood expelled by the human heart defied for many decades the numerous attempts that were made to solve this important problem of physiology. In recent years, however, methods have been developed, so that now exact measurements of the cardiac output can be made. These methods are entering the domain of clinical medicine, and bid fair to furnish important new knowledge of disease and of the action of drugs.

The approach to the problem of measuring the output of the heart has of necessity been indirect. The problem has been attacked by a variety of methods, but all of them have been focused on the measurement of the amount of blood that passes through the lungs each minute.

As long ago as 1870, the German physiologist Fick [1] laid down a principle by which the measurement of the pulmonary blood flow could be accomplished, and this principle has been the basis of much of the work bearing on this problem which has developed during the last fifteen or twenty years. Fick stated the rather simple principle that the cardiac output per minute could be calculated when the amount of oxygen consumed by the body each minute is measured and when the amount of oxygen removed from each unit of blood as it passes through the capillaries is determined. Thus, if 300 cc. of oxygen is consumed each minute and 5 cc. of oxygen is removed from each hundred cubic centimeters of blood, then it is necessary that sixty times 100 cc. of blood, or 6 liters, must pass through the lungs each minute in order to transport the 300 cc. of oxygen required by the body.

The same principle may be applied when carbon dioxide instead of oxygen is measured. When the amount of carbon dioxide exhaled each minute is determined and the amount taken up by each unit of blood is calculated, the amount of blood passing through the lungs each minute may be stated.

Many years elapsed after Fick laid down this principle before the means of its application were at hand. Physiology was obliged to await the development of physical chemistry and its application to biologic study before this principle could be applied to the measurement of the cardiac output. Means of measuring the consumption of oxygen and the elimination of carbon dioxide have long been known. But the measurement of the oxygen withdrawn from each unit of blood or

13. Major, R. H.: The effects of Hepatic Extracts on High Blood Pressure, J. A. M. A. 88: 251 (July 25) 1925.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Fick, A.: Sitzungsb. der phys.-med. Gesellsch. zu Wurzburg 16, 1870.

of the carbon dioxide taken up by each unit of blood as it passes through the capillaries presented difficulties. In order to make these measurements, it is necessary to know the gaseous content of the arterial blood as it leaves the lungs, and also the gaseous content of the mixed venous blood, collected from all parts of the body, as it enters the lungs. With these data available, the oxygen withdrawn from the blood is readily determined by subtracting the venous oxygen from the arterial oxygen, while the carbon dioxide collected by the blood is determined by subtracting the arterial carbon dioxide from the venous carbon dioxide.

Accurate methods of blood-gas analysis have been developed, especially by the work of Van Slyke, and it is now possible to obtain arterial blood by puncture of the brachial or radial artery, and submit it to direct analysis.

The determination of the gaseous content of the mixed venous blood has been the most difficult problem in the application of the principle of Fick. To trace even the important steps that have been taken in the solution of this problem is beyond the scope of this paper. It may be said, however, that the way was opened by Pflüger's idea that the lungs act as an aerotonometer, and that the relation of the gases of the blood and of the air is the same in the lungs as it is under similar conditions of temperature and water vapor tension in a glass tonometer outside the body.

Plesch,[2] in 1909, demonstrated that, by means of rebreathing in and out of a rubber bag, a gas mixture can be obtained in which oxygen and carbon dioxide are in equilibrium with these gases in the venous blood entering the lungs, so that no changes occur in the tensions of these gases when they are exposed to the venous blood by being held in the lungs for a short period of time. His method had, however, an element of uncertainty, and was not readily used for determining the gaseous content of the venous blood.

METHOD OF MEASUREMENT

Burwell and I[3] have devised a method for determining the gaseous contents of the mixed venous blood by a more direct method, following the general idea of Plesch. By a respiratory method a gas mixture is obtained in which both the oxygen and the carbon dioxide are in equilibrium with these gases in the mixed venous blood of the subject being studied. A tonometer is then filled with this gas mixture, and a small amount of venous blood of the subject, obtained from a superficial vein, is introduced into the tonometer. The blood is then brought into equilibrium with the gases in the tonometer by rotating the tonometer at body temperature for twenty minutes. The blood is then withdrawn over mercury and analyzed for its oxygen and carbon dioxide content. The details of this method and the proof of its accuracy have been published elsewhere.[3]

Blood is also withdrawn from the brachial or radial artery, by arterial puncture, and its oxygen and carbon dioxide content is also determined by the Van Slyke method. Just before the foregoing procedures are carried out, the respiratory gases are collected during a six minute period in a large spirometer, so that the oxygen consumption and the carbon dioxide elimination can be determined by the Tissot method. After all the analyses of blood and air are completed, the following facts are known: the amount of oxygen consumed by the body each minute, the amount of oxygen in each cubic centimeter of blood leaving the lungs, the arterial blood and, in each cubic centimeter of blood entering the lungs, the mixed venous blood. The difference between the oxygen content of the arterial and the venous blood tells the amount of oxygen removed by the body from each cubic centimeter of blood. The data necessary to calculate the amount of blood discharged by the heart per minute are now at hand, as the amount of blood required to transport the oxygen consumed each minute is readily calculated by dividing the amount of oxygen consumed per minute by the amount of oxygen given up by each cubic centimeter of blood. The figure so obtained represents the output of each ventricle per minute. The output of the heart per beat is readily determined by dividing the output per minute by the heart rate per minute. Similar calculations are also made from the figures obtained by analysis for carbon dioxide. An important check on the method is the relation of oxygen and carbon dioxide in the blood and in the expired air. The proportion of the oxygen consumed to the carbon dioxide produced by the body per minute as determined in the expired air gives the respiratory quotient. The same proportion should exist between the amount of oxygen withdrawn from each cubic centimeter of blood and the amount of carbon dioxide added to each cubic centimeter as the blood passes through the body, if all analyses are correct. This gives the so-called internal respiratory quotient. The method gave almost perfect checks in this regard in a series of normal individuals.

TABLE 1.—*Method of Analysis and Relation of Respiratory and Circulatory Functions* *

	Oxygen, per Cent by Volume	Carbon Dioxide, per Cent by Volume	Oxygen Saturation, per Cent
Arterial blood	21.80	47.36	97
Mixed venous blood	16.55	51.18	74
Difference	5.25	3.82	23
Arm vein blood	13.57	52.92	61
Total gas exchange per minute (cc.)	235	176	
Circulatory minute volume (cc.)	4,480	4,600	
Output per beat	69	71	
Respiratory quotient, internal	0.73		
Respiratory quotient, external	0.75	$p_H = 7.34$	

* B. S. L., a normal subject; standard rest; pulse, 64; height, 180 cm.; weight, 62 Kg.; body surface area, 1.78 square meters.

Table 1 indicates the knowledge furnished by the various analyses, and shows the quantitative relation of the respiratory and circulatory functions. Table 2 gives the results of a series of determinations on normal resting individuals studied in a half reclining position, and shows the agreement obtained between the calculations based on the oxygen determinations and those based on the carbon dioxide determinations. All these determinations were done on subjects in the so-called basal state; that is, after a period of about half an hour of complete rest and about fourteen hours without food. This table shows the variations that occur in a small series of normal subjects under identical conditions, regarding the cardiac output both per minute and per beat.

Table 3 shows the striking variation in the cardiac output that was observed in a case of exophthalmic goiter before and after thyroidectomy. The determinations made on this patient before operation illustrate the mechanism by which the body meets the increased demand for oxygen, an outstanding feature of exophthalmic goiter. The output of the heart per beat is

2. Plesch: Ztschr. f. exper. Path. u. Therap. **6**: 380, 1909.
3. Burwell, C. S., and Robinson, G. C.: J. Clin. Investigation **1**: 47, 1924.

abnormally large, and the number of beats per minute is also increased. An interesting point in this observation is the fact that the cardiac output was increased beyond the actual need of the body for oxygen, as the amount of oxygen withdrawn from each unit of blood as it passed through the capillaries was less than that withdrawn in normal resting subjects. The withdrawal of oxygen was also distinctly less than occurred in this subject after thyroidectomy. This observation indicates that it is not the increased demand for oxygen alone that causes acceleration of the heart in exophthalmic goiter, but that there are other factors operative which increase the output of the heart beyond the needs of oxygen transport.

A comparison of the output of the heart per beat before and after thyroidectomy indicates the striking change that may take place in cardiac output. There are now numerous observations reported in the literature which fully substantiate the fact that the heart may more than double its output per beat. The recent work on this subject refutes the contention that Yandell Henderson [4] has held for years, on insufficient data, that the output of the heart per beat is essentially constant, and that its output per minute is regulated by variations in rate. Recently Henderson [5] has acknowledged that this view of the cardiac output can no longer be upheld.

Important observations regarding the variations in the output of the heart have recently been made by Field and Bock,[6] who found that definite changes in the output of the heart occur with changes in position of the subject. In the prone position the cardiac output is definitely greater than when the subject is sitting, and a further diminution occurs when the erect position is assumed. Because of this fact, it is necessary that the position of the subject should always be stated in reporting results, and that the position should be kept constant whenever comparable determinations of the cardiac output are desired. This observation is also of interest as explaining the fact that patients with cardiac insufficiency are more comfortable in the sitting position. The bearing of the diminished cardiac output to orthopnea has been fully discussed by Field and Bock, and their observations are in accord with other facts that have come from studies on the output of the heart, indicating that relief of symptoms from cardiac failure is often obtained by measures that diminish the cardiac output.

TABLE 2.—*Results of Determinations on Normal Resting Individuals*

Subject	Oxygen Consumption per Minute, Cc.	Oxygen Utilization, per Cent by Volume	Minute Output, Cc.	Heart Rate	Output per Beat, Cc.	External Respiratory Quotient	Internal Respiratory Quotient
1. A.....	231	6.53	3,520	54	65	0.76	0.72
2. H. (1).....	231	6.05	3,820	61	63	0.79	0.83
3. R. (1).....	236	5.97	3,950	68	58	0.85	0.81
4. R. (1).....	238	6.01	3,960	72	55	0.79	....
5. H. (2).....	259	5.59	4,120	64	64	0.81	0.81
6. G.....	192	4.28	4,480	65	69	0.82	0.76
7. L.....	235	5.25	4,480	64	70	0.75	0.73
8. M.....	249	5.47	4,550	66	69	0.76	....
9. B. (1).....	208	4.55	4,540	62	73	0.79	0.76
10. P.....	240	5.16	4,650	56	83	0.78	0.72
11. K.....	245	4.09	6,000	68	88	0.71	....
12. B. (2).....	213	3.14	6,780	65	103	0.75	0.75
Range.....	192 to 249	6.53 to 3.14	3,520 to 6,780	54 to 72	55 to 103	0.71 to 0.85	0.72 to 0.83

Evidence for the belief that the relief of acute cardiac failure is brought about by diminishing the cardiac output has been furnished especially by the work of Eppinger, von Papp and Schwartz,[7] who have carried out an extensive investigation of the output of the heart in man under various conditions of health and disease, with emphasis on the study of paroxysms of cardiac dyspnea. They have found that morphine may reduce the output of the heart 30 per cent per minute, and in one case in which the effect of digitalis was studied, the output of the heart was reduced from 5,570 cc. to 4,100 cc. a minute, a reduction of 23 per cent. These authors also show that great increase in cardiac output accompanies sudden cardiac failure, with severe dyspnea and pulmonary congestion. These observations throw new light on the problem of the mechanism of cardiac failure, and point the way to a better understanding of how relief is to be obtained.

TABLE 3.—*Blood Flow in a Patient with Hyperthyroidism*

	Oxygen Consumption per Minute, Cc.	Oxygen Utilization, per Cent by Volume	Minute Output, Cc.	Heart Rate	Output per Beat, Cc.	Basal Metabolic Rate
Before thyroidectomy.	233	2.53	10,000	112	89	Plus 58%
After thyroidectomy...	168	3.44	4,800	78	63	Plus 1%

ANIMAL EXPERIMENTATION

Work is now being carried on by members of my staff, Dr. Harrison and Dr. Leonard, in order to determine the influence of digitalis on the output of the heart of the dog. Although the work is still in progress, it has reached a stage at which it may be stated that digitalis, administered intramuscularly as digifolin, in doses comparable to those used therapeutically, generally causes a definite diminution in the cardiac output per minute, frequently amounting to a reduction of 25 per cent of the output before the drug is given.

The cardiac output in dogs may be estimated by the collection of the expired air in a spirometer and by determining the gaseous content of arterial and venous blood withdrawn directly from the right and left ventricles. Cardiac puncture is carried out without injury to the animals and without pain, as quiet animals submit to the procedure without struggle or other evidence of discomfort.

ETHYL IODIDE METHOD

Time does not permit a discussion of other methods for determining the output of the heart. However, mention should be made of the ethyl iodide method recently published by Henderson and Haggard.[8] Ethyl iodide is a volatile liquid, the vapors of which are taken up by the blood from the lungs in a definite proportion of the vapor present in the lungs, each liter of blood passing through the lungs taking up twice the amount contained in each liter of alveolar air. Ethyl iodide is, according to Henderson, destroyed in the body, so that practically none of it is returned to the lungs. A small amount of ethyl iodide is vaporized in the air to be breathed. By analyzing the inspired and expired air as well as samples of alveolar air for ethyl iodide, data are obtained which indicate the

4. Henderson, Yandell: Physiol. Rev. 3: 165 (April) 1923.
5. Henderson, Yandell: Lancet 2: 1317 (Dec. 26) 1925.
6. Field, H., Jr., and Bock, A. V.: J. Clin. Investigation 2: 67 (Oct.) 1925.
7. Eppinger, H.; von Papp, L., and Schwarz, H.: Ueber das Asthma cardiale, Berlin, 1924.
8. Henderson, Yandell; and Haggard, H. W.: Am. J. Physiol. 73: 193 (June) 1925.

amount of blood flowing through the lungs per minute. This method is a great improvement as regards the time and technical skill necessary to determine the output of the heart. However, there is reason to doubt its accuracy. The method has been carefully applied by a member of my staff, who was unable to obtain results that were satisfactory, and the method has not proved successful in the hands of other workers well trained in respiratory methods. It is to be hoped, however, that the method may prove all that is claimed for it by its originator, as it will open the important field of quantitative study of the circulation to many workers, and much of value is sure to result. A simple method of measuring cardiac output, applicable to patients and not requiring special technical training, is much to be desired. Probably no method would yield results more needed at the present time for a better understanding of much that is now obscure regarding the circulation and its disturbances.

THE ANTIPRESSOR FRACTION FROM LIVER TISSUE AND ITS PHYSIOLOGIC ACTION*

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AND
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The methods of extraction used in separating the antipressor fraction from hepatic tissue are varied but simple. The original preparations were obtained by freezing and thawing the liver mash in Locke's solution and then removing the proteins and peptones from the saline extract. The present method involves the ues of boiling water in appropriate amounts and degrees of acidity and is much more effective. On the other hand, the problems of purification, standardization and stabilization are complex and are fraught with considerable difficulty.

The boiling acidulated aqueous extract is the most suitable method for the removal of the coagulable proteins. Acetic acid is quite effective, although other acids may be used, if due regard is had for the hydrogen ion concentration.

Throughout the entire procedure, it is necessary to prevent oxidation taking place in the extracts, as the active principle is apparently extremely labile and is readily destroyed. We are having encouraging results by using reducing substances designed to minimize the effect of any heat stable oxydases of the liver or even simple oxidation, which so readily takes place. Sodium sulphoxylate and sodium hydrosulphite have been found satisfactory.

Alcohol is a suitable reagent for removing peptones and also for the fractional precipitation of the active material, though in the latter case it does not give a clean separation of the depressor substance from protein material. The peptones may be effectively and entirely removed by neutral lead acetate from an extract made up to 50 per cent alcohol. The excess lead is removed from the filtrate by hydrogen sulphide. Precipitating with lead acetate from aqueous solution alone gives preparations lower in potency than when alcohol is used. This is probably due to the lead acetate, as the hydrogen sulphide is not deleterious. The lead carries down the bulk of the pigment, and the rest is removed by decolorizing charcoal, which, with due care, does not adsorb the active material to any appreciable extent.

The alcohol can be removed by distillation at normal pressures and the residue concentrated on the steam bath without loss of the depressor element, provided the acidity is maintained. This simple extract, which is protein and peptone free, can be used safely. It is a mixture of various bases, but all adventitious matter seems innocuous. If proper precautions are taken in the preparation of the extract, no trace of histamine or choline is present. The reagent used for testing for histamine is p-diazobenzene sulphonic acid, which is prepared fresh as required. The iodine crystal method is used for detection of choline.

From extracts prepared by the foregoing methods, the active principle may be precipitated by phosphotungstic acid. By means of extraction with ether, it may be separated under certain conditions from the bases precipitated by phosphotungstic acid. The latter property would preclude the possibility of identifying it with histamine. Furthermore, the compound under ordinary conditions is extremely unstable. Its potency is of longer duration in an acid medium, but even then it ultimately deteriorates. This instability is not characteristic of histamine or choline.

The physiologic effects of these extracts are entirely different from those of histamine and chlorine. There is no flushing, as is the case with histamine. The duration of the fall in blood pressure is much more prolonged than with histamine, lasting for several hours. Following the injection in experimental animals, there is no cardiac or respiratory change that cannot be accounted for by the fall in blood pressure. A diminution of kidney and splenic volume following administration of the extract has been noted. The exact mode of action of these extracts is still obscure, but it is believed that the principal effect is on the small arterioles. Experiments along similar lines have been carried out by Major and Stolland, and their results point to a similar conclusion.

Major and Stolland have further shown the antagonistic effect between methylguanidine and the depressor principle from the liver. Not only is there antagonism between these substances with respect to blood pressure, but also the contraction of smooth muscle caused by methylguanidine is inhibited by the liver extract. In view of these facts, Major has advanced the hypothesis that methylguanidine, which he showed to be excreted in increasing amounts following the administration of hepatic extracts, might possibly be a fundamental causative agent in hypertension.

Our clinical results with liver extracts to date have been gratifying. In some patients, the depression in blood pressure was very gradual, and the lowest point was reached many hours after the injection. In other cases the effect was immediate and persistent. At the present time, the clinical data accumulated are not exhaustive. Unfortunately, the instability of the depressor principle under the most favorable conditions is such that the extracts have to be administered freshly prepared to insure the best results.

As to the chemical nature of the depressor substance, we are as yet in ignorance. However, the effects of

* From the departments of biochemistry and physiology of the University of Western Ontario Medical School.
* Read before the Section on Pharmacology and Therapeutics at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

tetra-ethyl-ammonium compounds on the blood pressure in dogs more nearly resembles those obtained by the use of liver extracts than do other known depressor substances.

[EDITORIAL NOTE.—This paper, together with the two papers that precede it, by Dr. Major and by Dr. Robinson, constitute part of a symposium on "Cardiovascular Hypertensive Disease and Its Treatment." The two concluding papers, one by Dr. Brown and the other by Dr. Miller, together with the discussion, will be published in the next issue of THE JOURNAL.]

DAILY VARIATIONS IN COMPLEMENT FIXATION (KOLMER) AND PRECIPITATION (KAHN) REACTIONS

IN UNTREATED SYPHILITIC PATIENTS *

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Several observers have described variations in the strength of the complement fixation reaction in untreated patients with syphilis. Recent studies with both the Kolmer complement fixation and the Kahn precipitation tests for syphilis have shown such a high degree of specificity and sensitiveness that this question seemed worthy of restudy.

Variations in Both Kahn and Kolmer Tests in Eight Cases Out of Fifty Studied

	1	2	3	4	5	6	7	8	9	10	11	12
1. F. S.												
Kolmer	++	++	++	++	++	++	++	++	+	−	−	−
Kahn	+++	++	++	++	++	+	++	++	++	+	−	−
2. G. D.												
Kolmer	+	+	+	+	+	+	+	+	+	++	++	++
Kahn	−	−	−	−	−	−	−	−	−	−	−	−
3. B. J.												
Kolmer	+++	+++	+++	+++	−	+	+++	+++	++++	++++	++++	++++
Kahn	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
4. P. M.												
Kolmer	−	++	−	−	−	−	+	−	−	−	−	−
Kahn	+	−	++	++	++	++	++	++	++	++	++	−
5. E. S.												
Kolmer	++	++	++	++	++	+++	+++	+++	++	−	++	++
Kahn	+++	+++	+++	+++	++	++	++	+++	−	+++	+++	+++
6. F. D.												
Kolmer	++	+++	+++	+++	+++	+++	+++	+++	++	++	++	++
Kahn	++	−	++	++	++	++	−	−	−	−	+	++
7. J. V.												
Kolmer	+	+	+	+	++	++	++	++	++	++	++	++
Kahn	++	++	++	++	++	+	++	−	++	++	++	++
8. A. H.												
Kolmer	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++	++++
Kahn	+++	+++	++	+++	+++	+++	++	++	+	+++	+++	+++

It should immediately be noted that this study does not take into consideration the variation in complement fixing and precipitating substances occurring in treated syphilitic patients. It is a well known fact that such variations, particularly in those treated with the arsphenamines, are very common and the rule. This explains the reluctance with which one pronounces "cure" even after prolonged treatment of chronic syphilis; relapses in our experience have been observed as late as one year after the last negative blood complement fixation test. It may be noted further that the conflicting reports not infrequently obtained from different laboratories have nothing to do with the present study but are undoubtedly due to technical errors.

The question really merits attention from both a clinical and a diagnostic point of view. In a previous communication,[1] it was stated that one of the reasons for the frequent examination of the blood required in the performance of the provocative test was the fact that daily variations in complement fixing substances had been said to occur. According to previous observers, the variations in complement fixing substances—no such reports deal with flocculation tests—may be so great as to pass from a strongly positive to a negative reaction in twenty-four hours. With a patient, suspected of being syphilitic and who gives a negative complement fixation test, a second test is usually demanded. If, however, no such extreme variations occurred with the new tests, particularly if one was used as a check on the other, one would certainly feel more secure in a negative finding.

LITERATURE

Craig,[2] while performing examinations of serums for the Wassermann test, frequently observed cases in which the reaction varied from a strongly suspicious one to a plus minus, or frankly negative, one within intervals of one or two weeks, while in a few cases a positive reaction had become negative within the same period of time, the patients in the meantime having received no treatment.

In the first instance, as has already been stated, such variations are known to occur frequently in treated syphilitic patients, although their cause remains obscure. In the second instance, however, such occurrences are not generally known. Although these anomalous results of Craig were not numerous, the importance of the finding in patients suspected of the disease, as well as the fact that most physicians had grown to believe that the strength of the reaction was an invariable quality, led him to an experimental study of the blood serum in ten untreated cases of syphilis, the titrations covering seven days in each instance. He concluded that great variations may occur in the complement binding power of the serum of patients uninfluenced by any kind of treatment; that a single negative or a doubtful positive is of no

* From the Clinic of Dermatology-Syphilology of Prof. J. F. Schamberg, Polyclinic Hospital of the Graduate School of Medicine of the University of Pennsylvania.

1. Greenbaum, S. S., and Wright, C. S.: Am. J. Syph. 8:4 (Oct.) 1924.

2. Craig, C. F.: Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections, J. A. M. A. 62:1232 (April 18) 1914.

value in excluding syphilis, and that the occurrence of these natural variations must be carefully considered in the diagnosis and control of treatment. As in all the instances of variations the subsequent tests resulted positively, it appeared that they were the result of a reduction or absence of complement fixing substances.

Thaysen [3] applied the complement fixation test repeatedly to sixty-six persons and, despite a scrupulous technic under conditions alike in all, found reactions which showed a wide range from negative to positive or dubious with fluctuations from time to time.

Haller,[4] on the other hand, studied twenty cases of untreated syphilis and concluded that the variations occurring in the daily titration, provided the antigen is constant, are due to variations in the hemolytic system.

METHODS

The tests were conducted by Kolmer's method, a routine technic with unabsorbed serum and the same antigen throughout the series being used. The Kahn tests were performed exactly according to the Kahn technic, except that serums were heated for fifteen instead of thirty minutes. The readings were made as soon as the tests were completed and again the next morning after the serums had stood in the refrigerator. It was found that this increased the delicacy of the test. The reports are based on morning readings. The same antigen was used throughout and was supplied by Dr. Kahn.

The blood of fifty untreated syphilitic patients was examined on twelve consecutive days. In most instances, from four to six tests, representing the accumulated serums of from four to six consecutive days, were done on the one day. In other words, specimens were kept on the average of one week, and the series run through at one time with the same reagents.

RESULTS AND CONCLUSIONS

Of the fifty patients studied, forty-two gave uniform complement fixation and precipitation tests with only slight variations throughout the series. In the remaining eight, variations occurred in one or the other tests, as shown in the accompanying table. These variations went from one extreme to the other, but a careful study of the table will show that one or the other test almost invariably caught up any failure in either to detect syphilis. In only two of the eight instances in which wide variations occurred were both tests negative on the same day during the series. This is extremely important and demonstrates the value of performing both the Kolmer and Kahn tests on a given serum. It is noted that variations occur with both tests, and that this is undoubtedly indicative of a change from day to day in the sum total of syphilitic substances present in the blood.

Our studies clearly support those of Craig, that there are variations and that these occur even when the serologic examinations are made with the refined and newer tests. Although our studies are substantially the same as those of Craig, yet with the newer and refined tests the percentage of extremely wide variation is very low, particularly with respect to an agreement on negativity on the same day in known syphilitic persons. In view of this, it may be definitely stated that if both tests are performed on a given serum, the variations may be ignored.

3. Thaysen, T. E. H.: Acta med. Scandinav. **55**: 281 (June) 1921.
4. Haller, D. A.: Wassermann Variations, J. A. M. A. **66**: 882 (March 18) 1916.

STREET RISK OF CARBON MONOXIDE POISONING *

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Henderson and Haggard,[1] in 1923, reported the presence of carbon monoxide in recognizable concentrations in the air of New York and New Haven streets. Their discussion made physicians aware of the possibility of the existence of chronic or repeated carbon monoxide poisoning, to be looked for not only in the usual places, such as dwellings with leaky gas pipes, but also in streets where motor traffic was very dense. We decided to examine the blood of a number of subjects exposed in the most evident manner to the danger.

It appeared advisable to investigate traffic patrolmen. It was recalled that during the past few years many of these men, on duty in the most congested mercantile districts of Philadelphia, have complained at the end of the day's work of symptoms that might be due to slight carbon monoxide anoxemia: headache, slight nausea and muscular weakness. These symptoms were noted especially in men detailed to supervise the very heavy traffic movement at the ferries. All obtained relief when transferred to other sections of the city, free from the menace of automobile exhaust gases.

In the spring of 1925, one of us (W. T. D.), assisted in part of the work by Dr. M. E. Folinsbee, examined for carbon monoxide the blood of fourteen foot traffic patrolmen as they reported to headquarters from eight hours duty in the crowded section of the city. The method used was that of Sayers, Yant and Jones,[2] which gives colorimetrically the percentage saturation of the hemoglobin with carbon monoxide. The values found ranged from 0 to 30 per cent, with the two observers agreeing that six men showed values of about 20 to 30 per cent. The best accuracy of the method is within 5 per cent. The higher values found are consistent with slight headache and quickened pulse rate,[3] but it was not considered advisable to interrogate the men as to the existence of subjective symptoms.

Later in the year two of us (I. G. and E. D. W.) carried out a number of determinations with a specially designed modification of the Van Slyke constant volume gas analysis apparatus.[4] The method used was liberation of all the gases of the blood by acid ferricyanide and vacuum extraction, absorption of carbon dioxide and oxygen with alkaline pyrogallol, and absorption of carbon monoxide with gas-free Winkler's reagent. The

* From the Departments of Physiology and Medicine of the Woman's Medical College of Pennsylvania, Philadelphia; the Philadelphia Police Department, and the Department of Physiology of the Medical Department of the University of Texas, Galveston.

1. Henderson, Yandell; and Haggard, H. W.: Health Hazard from Automobile Exhaust Gas in City Streets, Garages and Repair Shops, J. A. M. A. **81**: 385-391 (Aug. 4) 1923.
2. Sayers, R. R.; Yant, W. P., and Jones, G. W.: The Pyrotannic Acid Method for the Quantitative Determination of Carbon Monoxide in Blood and Air, Pub. Health Rep. **38**: 2311 (Oct. 5) 1923.
3. Haldane, J. S.: The Action of Carbonic Oxide on Man, J. Physiol. **18**: 430, 1895. Sayers, R. R.; Meriwether, F. V., and Yant, W. P.: Physiological Effects of Exposure to Low Concentrations of Carbon Monoxide, Pub. Health Rep. **37**: 1127 (May 12) 1922.
4. Van Slyke, D. D., and Neill, J. M.: The Determination of the Gases in Blood and Other Solutions by Vacuum Extraction and Manometric Measurement, J. Biol. Chem. **61**: 523 (Sept.) 1924. Harington, C. R., and Van Slyke, D. D.: Ibid., p. 575. Advice regarding the use and construction of this instrument was given by Dr. D. D. Van Slyke, Dr. W. C. Stadie and the Steele Glass Company.

majority of the determinations were accompanied by hemoglobin determinations by Haldane's method.[5] In eighteen foot traffic men, values of from 0.90 to 2.28 per cent by volume of carbon monoxide were found, and the saturations of the hemoglobin with carbon monoxide ranged from about 5 to about 13 per cent. These values may be somewhat low as the result of difficult retention under reduced pressure of carbon monoxide absorbed by Winkler's reagent.

Investigation shows that the present street risk of carbon monoxide poisoning from eight hours of maximal exposure is that up to about 30 per cent of the hemoglobin may possibly be temporarily saturated with carbon monoxide. "At about 30 per cent saturation very slight symptoms, such as slight increase of pulse rate, deeper breathing and slight palpitation, became observable during rest, and running upstairs was followed in about half a minute by dizziness, dimness of vision and abnormally increased pulse rate."[5] In the case of the policemen, it appears evident that the elimination of the carbon monoxide from the blood will be virtually complete by the morning after the day of exposure.[6] Should the anoxemia become severe and troublesome, the possibility of giving shorter hours of duty in crowded sections of the city clearly offers a ready solution.

CONCLUSIONS

The existence of a definite street risk of repeated or chronic slight carbon monoxide anoxemia is confirmed. Confirmation of such a diagnosis should be sought for by testing the blood for carbon monoxide. A quantitative method should be used.

THE INTRAVENOUS ADMINISTRATION OF SODIUM CHLORIDE IN BROMODERMA

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Because of the frequent occurrence of bromine and its salts in various "patent medicines," and its long-continued use in epilepsy and as a sedative in nervous disorders, cutaneous manifestations from its use are rather frequent. Waugh[1] clearly brings out this fact in a report of a case of bromoderma occurring in a man, aged 40, who had taken bromo-seltzer regularly for a period of two years. In an investigation of bromo-seltzer Waugh found that 1 drachm (4 Gm.) of the drug contained 7 grains (0.5 Gm.), the usual dose being half an ounce, and that one large drugstore in Chicago sold almost 1,500 pounds in a year's time. The pound size bromo-seltzer bottle always occupies a conspicuous place on our own soda fountains, and, therefore, it is also apparently consumed in large quantities in New York.

Bromism may appear after only a few days steady use of the drug, and it may manifest itself under unusual circumstances; for instance, Costello[2] reports an interesting case by placental transmission. The mother had taken large doses of bromine, but had not shown a bromine rash. The child had not been breast fed, yet three days after birth it developed a bromine rash. Much biochemical and physicochemical work has been done in order to discover the reason for the dermatologic outbreak from the ingestion of the drug, and much of it has proved contradictory. Szadek,[3] one of the earlier investigators, believed that the exanthem originated from an irritation of the sebaceous glands. Guttman[4] was of the opinion that the cutaneous reaction was due to the free halogen liberated by contact with the acid in or about the structures of the skin. These views persisted until later investigators, such as Laudenheimer[5] and von Wyss,[6] ventured the belief that the ingestion of bromine led to a gradual deposit of the drug in the tissues and the replacement by it of the normal chloride content. In this country, Engman and Mook[7] expressed the view that the lesions were more liable to occur at the site of previous inflammation and that trauma might play a part, thereby explaining the occasional predilection of a bromoderma for old seborrheic or acne areas. They also believed that a toxin, in itself caused by some disturbance, might be accountable for the lesions.

Wile,[8] in a notable article on the subject, stated that in no case has he been able to demonstrate the drug in the contents of lesions, and he believed that it was not present unless there was an admixture of blood serum. In a patient with pemphigus, who had been taking 20 grains (1.3 Gm.) of potassium bromide three times daily for three days, bromine was demonstrated in the contents of the bullae. The urine of patients taking bromide showed an increase of about double in chloride output, followed by a gradual approach to normal, notwithstanding the continued use of the drug; the normal, however, was not reached until some time after the drug had been discontinued. Bromine was found in the sweat and blood serum and, apparently, the theory of the substitution of bromine in the body fluids in the place of chloride was correct, the gradual increase of the bromine salts being accelerated by the difficulty of their filtration through the kidney.

In a later communication, Wile[9] brought out the fact that the stored up bromides could be replaced by the administration of large amounts of chloride, thus reversing the process of displacement of chlorides by the bromides. On this premise, he treated three patients with bromism by decinormal saline solution in doses of from 100 to 500 cc. The severest of the cases showed a marked reaction (chill; pulse, 140; temperature, 103 F., and cyanosis) after the first injection of 500 cc. A second injection of 100 cc., given two weeks later, was followed by no reaction, and the bromic eruption involuted rapidly, to complete disappearance after from two to five injections.

Guy and Jacob presented, before the Pittsburgh Dermatological Society, Nov. 15, 1923, a case of bromoderma with one of the lesions on the leg as large as 15.2 by 11.3 cm., which showed marked favorable

5. Haldane, J. S.: Respiration, Yale University Press, 1922.
6. Walton, D. C.; Eldridge, W. A.; Allen, M. S., and Witherspoon, M. G.: Carbon Monoxide Poisoning, Arch. Int. Med. **37**: 398 (March) 1926.
1. Waugh, J. F.: Bromide Eruption Due to Bromo-Seltzer, J. A. M. A. **82**: 1584 (May 17) 1924.
2. Costello, J. P.: Ann. Dermat. & Syph., October, 1923.
3. Szadek: Casuistik des Brom-exanthems, Arch. f. Dermat. **20**: 599, 1888.
4. Guttman: Bromreaktion des Inhalts von aknepustular nachlangen Bromkalunengebranch in einem Falle von Agraphobie, Virchows Arch. f. path. Anat. **74**: 541, 1878.
5. Laudenheimer: Ueber das Verhalten der Bromsälze im Korper in des Epileptikers, Neurol. Centralbl. **16**: 538, 1897.
6. Von Wyss and Ulrich: Die Bromtherapie der Epilepsie auf experimenteller Grundlage, Arch. f. Psychiat. **46**: 197, 1909-1910.
7. Engman and Mook: A Contribution to the Histopathology and History of Drug Exanthems, J. Cutan. Dis. **24**: 502, 1906.
8. Wile, U. J.; Wright, C. S., and Smith, N. R.: A Preliminary Study of the Experimental Aspects of Iodide and Bromide Exanthems, Arch. Dermat. & Syph. **6**: 529 (Nov.) 1922.
9. Wile, U. J.: Further Contributions to the Experimental Aspects of Iodide and Bromide Exanthems, Arch. Dermat. & Syph. **8**: 407 (Sept.) 1923.

response to the intravenous injection of physiologic sodium chloride solution, but bromine had not been found in the urine either before or after the injection. Andrews, at a meeting of the Manhattan Dermatological Society, presented a patient with fungating lesions on the hands, to whom he had given large doses of sodium chloride by mouth, with prompt involution of the lesions in three weeks. Within a few months of each other, three well developed typical cases of bromoderma appeared in Dr. Whitehouse's service at the New York Skin and Cancer Hospital. One of these patients had been treated in the dermatologic ward for two months without any apparent effect on the lesions. These cases responded so well to the intravenous injection of sodium chloride that they justify reporting.

REPORT OF CASES

CASE 1.—A woman, aged 22, with both pustular and condylomaform crusted lesions on the legs, stated that they had been present for two months. For some weeks previously she had been taking some pills containing six or seven different ingredients, given her by a pharmacist who refused to let her have a copy of the prescription. This woman remained in the hospital for two months on the usual treatment, without any apparent change in the lesions. She was then given 50 cc. of decinormal sodium chloride solution intravenously, and three times a week thereafter in doses up to 100 and 200 cc., the solution being changed from decinormal to normal after the first injections. Within the first week the lesions involuted in a startling manner, and in six weeks they disappeared entirely.

CASE 2.—M. S., a man, aged 26, born in Russia, presented numerous lesions on the face and lower legs of the papillo-condylomatous type. He stated that they had been present for a month. For eight days prior to the appearance of the eruption, he had been taking the following prescription:

		Gm. or Cc.
℞	Sodium bromide	10
	Potassium bromide	
	Ammonium bromide aa	8
	Elixir of pepsin	20
	Distilled water q.s.ad	60

Sig.: 1 teaspoonful three times a day after meals.

The patient came to the clinic, Feb. 7, 1925. Local treatment was tried for a month without results. His first intravenous injection of 100 cc. of decinormal solution of sodium chloride was given, March 7. April 25, the injections were discontinued because of the fact that the lesions had disappeared, leaving only a few small scars. In the interval between March 7 and April 25, the dosage administered was between 100 and 200 cc., given three times a week.

CASE 3.—L. A., a boy, aged 19, gave a definite history of bromide ingestion. The lesions were located on the face and were papulopustular in character. Several of them had coalesced to form large crusted patches with tender swollen bases. The first injection of physiologic sodium chloride solution amounted to 100 cc. Within four hours, a marked reaction supervened; the temperature rose to 100 F., the pulse to 100, and the patient felt uncomfortable. Next day, the lesions flared up, but within forty-eight hours all these symptoms subsided, and the eruption markedly improved. No reaction followed subsequent injections. Six weeks later, the eruption had disappeared. Twelve or fourteen urine examinations were, strange to say, negative, not only to bromine but also to any evidence of kidney irritation.

COMMENT

A perusal of the case histories will demonstrate the following facts: Patient 1 did not react to ordinary treatment for eight weeks, yet after two or three weeks of saline injections was nearly half well. Patient 2 developed extensive bromoderma after only eight days of moderate dosage with the bromides. Patient 3 showed a marked reaction after the first injection, and a more rapid improvement than did the other two after the reaction had subsided.

Physiologic sodium chloride solution was used in most of the injections. Bromoderma is usually very obstinate to the treatment heretofore used; this is particularly true of the condylomaform type. The results obtained in this disease with such a simple remedy as saline solution seem, from the few cases noted, to be sufficiently encouraging to warrant further and more extensive use in the future, thereby determining its real value. In the opinion of Stevenson,[10] with which I unqualifiedly concur, the only apparent contraindication to its use is the presence of nephritis, for the apparent increased elimination of bromine following its displacement by chloride would undoubtedly aggravate an existing kidney irritation.

30 East Fortieth Street.

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

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(Continued from page 245)

INTRAMUSCULAR INJECTION

Depositing the injected material into muscular tissue or between layers of muscles (epifascial injection) has the advantage of more rapid absorption and less liability to abscess formation or necrosis from the introduction of irritant material. It has the disadvantage—and for the same reason—of greater liability of an accidental intravenous injection. This would not only give a suddenness and intensity of action that may be alarming, even dangerous, but also, when protein precipitant, insoluble or oily material is injected, the liability to the formation of pulmonary emboli, which may be manifested by dyspnea, cough, and even a rise in temperature. Though, as a rule, these results are not serious, they should be guarded against by proper technic.

Intramuscular injection is the method of choice for the administration of diphtheria and tetanus antitoxin, to secure prompter absorption, and of the insoluble mercurial and bismuth preparations, emetine, etc., on account of their irritant nature. To infants and others with whom intravenous injection presents special difficulties, intramuscular injections of neo-arsphenamine and of soluble mercurials may have to be given, though a certain amount of soreness is likely to follow.

The essential points by which intramuscular injection differs from the subcutaneous is in the use of a longer needle (from 1½ to 2½ inches, according to the thickness of the subcutaneous tissues) so as to reach the muscle layers, and a stronger needle, 22 gage, so as to lessen the danger of the needle being broken off while in the tissue. The needle must be in good condition. The

10. Stevenson, James: Sodium Chloride in the Treatment of Bromism, Arch. Dermat. & Syph. **12**: 525 (Oct.) 1925.

* This is the thirty-first of a series of articles on "The Technic of Medication." When completed, the articles will be assembled in book form.

skin, instead of being picked up in a fold, is stretched, the needle is inserted more or less perpendicularly, and it is necessary to aspirate for at least ten seconds before injecting to make sure that the point of the needle is not in a vein. If blood is aspirated, the needle should be withdrawn and reinserted a little distance from the previous place of puncture.

The site of election for these injections is the buttock. To avoid striking bone or depositing irritant material on the periosteum or near the roots of the sacral plexus, which may give rise to induration, pain, even obstinate sciatica, the buttock is divided into approximately equal quadrants by a horizontal and a vertical line. The injection is given in the upper outer quadrant near the intersection of the two lines. The patient should lie prone on the table, the feet toeing in. In this manner may be antagonized the dimpling of the buttock, denoting muscular tension, so common in patients who, fearing the introduction of the needle, keep their heels pressed together. Muscular rigidity renders the injection more difficult, and is liable to force medicament back along the track of the needle, resulting in leakage of the injected material, and in subcutaneous irritation and induration. To avoid this further, one should wipe the needle free from the material to be injected, and, while introducing the syringe through the tissues, maintain pressure with the index finger against the piston just along the barrel, so as to keep the piston from descending and squirting some of the fluid into the areolar and fatty tissues. To lessen liability to after-leakage into these tissues, it is desirable to shift the skin over the muscles just before the puncture by placing "the left hand flat on the buttock and with moderate pressure drawing it firmly downward toward the patient's heel"; and "the needle should be introduced at an angle of approximately 20 degrees from the vertical in a sagittal plane, with a slight inclination inward." [86] It is advisable to have a small air bubble in the syringe above the injection fluid to clear the needle of it.[87] As the needle is swiftly withdrawn, the left hand quickly pushes the tissues that had been drawn downward back to their normal position, and maintains pressure for a little while.

Stokes [86] aims to inject, especially when larger quantities of fluid (100 cc. or more) are to be given, but also at other times, in the areolar tissue on the upper surface of the fascia forming the extension of the fascia lata covering the gluteus maximus, as first advocated by Wechselmann and Eiche in 1914. Not only is better absorption obtained, but there is a much greater freedom from local irritation even on the injection of a highly irritating drug when this "epifascial" technic is carried out, than when the material is injected between the fasciculi of the muscle. Thus, Stokes and Behn [87] have administered sulpharsphenamine in doses ranging from 0.3 to 0.6 Gm. given in 30 or 40 per cent solution without any local discomfort whatever in 83 per cent of 1,360 injections; and with results quite as satisfactory therapeutically as from arsphenamine or neo-arsphenamine administered intravenously. This is accomplished by introduction to its full length of a needle properly adapted to the type of the buttock, and injecting only when the flow of a material is free and easy and the needle point does not "feel" as if stuck in a board. Gentle massage with a cotton pledget results in a rapid flattening out of the injection mass in the areolar tissue over the fascia, favors absorption, and lessens after-leakage. "A little experience," says Stokes, "soon enables one to control the technic by recognizing the deep, painful lemon or orange sized induration that has followed on too deep injection (intramuscular) and the hazel-nut to hickory-nut sized nodule in the skin or panniculus secondary to too superficial injection or to leakage along the needle track."

For children, as in the administration of diphtheria antitoxin, the outer surface of the thigh is advocated,[88] the material to be injected into [or better perhaps below] the vastus externus muscle. This is probably the least sensitive part of the skin; and, as the child does not have to lie on it, injection here causes less subsequent restlessness. The authors also believe that the pressure of the compact thigh muscles favors more rapid absorption.

Concentrated solutions or suspensions requiring small amounts for each injection are often less painful than more dilute preparations that have to be given in greater volume. To avoid uneven distribution of suspended material with resulting inequality of dosage, and the rapid deposition of the undiluted irritant material on the muscle after injection, denser mediums than oil are being advocated, such as fats of higher melting point or an emulsion of almond oil made with anhydrous wool fat (20 per cent) and water (5 per cent), by Nitardy.[89] To lessen pain, addition of a small amount of a local anesthetic, as of procaine hydrochloride, has been suggested, which, however, is of no use against the pain and soreness that may follow for several days after the injection.

The slowness of absorption of the insoluble materials, even on intramuscular injection, must be borne in mind. They may be absorbed at a rate of little over 1 per cent,[90] so that, if injections are given even at the usual weekly intervals, accumulation of drug in the tissue must invariably occur. This will, however, secure a very prolonged action, which may be kept harmless, provided a total maximum safe dose is not exceeded.

Should painful indurations or nodules appear, rest and hot applications, and later painting the overlying skin with tincture of iodine, and the application of gentle massage are useful. If fluctuation appears, aspiration may suffice to take care of the usually sterile abscess.

The most unpleasant complication of intramuscular injection is the breaking of a needle while in the tissue. This may be due to striking bone, a sudden movement of the patient, or a weak point in the needle. To avoid this occurrence, only the finest type of steel and tempered gold needles should be employed for intramuscular work, to be renewed often enough to secure good condition. If one is in doubt as to the integrity of the needle, a forcible attempt should be made to bend the shaft on the hub. To avoid sudden movement, cooperation of the patient must be secured or, in case of children, motion carefully guarded against. The correct point of puncture will obviate striking bone.

If a needle breaks, Stokes [86] suggests not to exclaim or to discuss the situation with patient or nurse, but to

86. Stokes, J. H.: A Technic of Intramuscular (Epifascial) Injection, M. Record **99**: 720 (April 30) 1921.

87. Stokes, J. H., and Behn, C. W.: Serologic and Clinical Results in Various Types of Syphilis, J. A. M. A. **83**: 242 (July 26) 1924.

88. Rolleston, J. D., and MacLeod, C.: Intramuscular Injection of Antitoxin in the Treatment of Diphtheria, Brit. J. Child. Dis. **11**, July, 1914.

89. Nitardy, F. W.: Notes on Suspension of Solids in Liquids, J. Am. Pharm. A., November, 1919, p. 961.

90. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Comparative Toxicity of Various Preparations of Mercury, J. Cutan. Dis. **33**, December, 1915.

keep the left hand in position until an attempt has been made to recover the needle. The usual point of fracture is at the juncture of the hub and shaft; and, with an assistant at hand, the fragment just beneath the skin may sometimes be recovered by a small incision and with the aid of a hemostat, if the operator keeps his presence of mind. If this is not done, the moment the left hand is released from the buttock the needle is lost and can usually be identified only by the roentgen ray and removed through an extensive surgical incision.

Injections for Topical Action.—Medicaments may be deposited for topical action in the parenchyma of glands, tumors (intraparenchymatous injection) and near nerve trunks (perineural injection), by a technic like that of intramuscular injection. The needle attached to the syringe, filled with fluid by holding its point upward and pressing on the piston until the first drop appears at the end, is inserted directly into the organ it is desired to reach. The piston of the syringe is then pulled on to see whether blood flows from the needle. If this occurs, it means that the point of the needle is engaged in a vessel and must therefore be withdrawn. If no blood flows, one may proceed with the injection.

When injection into serous cavities is aimed at, for instance, in the obliteration of hydrocele by the introduction of irritants, the needle, without being attached to the syringe, is inserted into the serous cavity. That the point of the needle is in the proper place is indicated by the appearance of the serous fluid at the open end of the needle. Then the syringe is attached to the needle, care being taken not to introduce any air, and the injection is accomplished.

INTRAVENOUS INJECTION

As with hypodermic injection, we may here also distinguish between the introduction into veins of small quantities of fluid—vein injection, proper—and of large quantities—vein infusion, sometimes merely spoken of as "infusion." From the standpoint of technic, it might be permissible to consider vein injection to include the intravenous introduction of fluid by means of a syringe, which practically limits the quantity up to 10 cc., certainly not exceeding 20 cc. When larger quantities of fluid are to be injected, the infusion is carried on by means of the hydrostatic pressure of a "gravity apparatus" or by air pressure.

It is a curious fact that vein injection was discovered and practiced earlier than hypodermic injection. If we discount the more or less mythical and apocryphal references to blood transfusion in ancient literature, the suggestion to introduce blood or medicaments into veins did not formulate itself definitely in man's mind until after Harvey (1613) demonstrated the circulation of the blood. The credit for being the first actually to inject drugs intravenously in animals belongs to the architect and professor of astronomy, Christopher Wren,[91] who in 1656 injected dogs with drugs by means of a quill attached to a small bladder. After that intravenous injection was practiced occasionally and rather exceptionally until 1910, when Paul Ehrlich, with the introduction of arsphenamine, which must be given intravenously to obtain the best results, made intravenous injection a matter of everyday practice. The surprising ease and relative immunity, once one has mastered the fairly simple technic, with which these injections may be given, having been discovered, an increasing number of drugs has been administered in this manner, until at present we are in an era of unnecessary and indiscriminate use of a method that is not devoid of risks.

Technic of Vein Injection.—The median cephalic veins at the bend of the elbow are the vessels of choice. If these for some reason are not available, the median basilic vein may be chosen (there is danger of wounding the brachial artery just below it), or a vein of the dorsum of the foot or the back of the hand, or the external jugular vein. In the infant, the superior longitudinal sinus [92] may be the only vein that can readily be punctured. Injection into varicose veins is not recommended, as these are prone to subsequent thrombosis, but may be resorted to exceptionally in obese persons in whom other veins may be quite inaccessible. It might be noted here, in passing, that intravenous injection of from 0.5 to 1 cc. of 0.5 to 1 per cent mercuric chloride solution has been practiced successfully for the purpose of obliterating varicose veins by means of thrombosis even in ambulant patients.[93]

The vein is made as prominent as possible by compression above the site of puncture. For the compression, a rubber band 1½ inches wide and 24 inches long (made from red rubber inner tubing) tied into a bow knot may be used; or else a rather wide rubber tube held together where it crosses, by means of a hemostat. Forsbeck [94] described a running bow line tourniquet, obtained by sewing a 2 or 3 inch loop in one end of a rubber tube. The open end is slipped through the loop, traction is exerted on both ends, and the loop is pushed down against the arm and released. It will hold firmly. Steady pressure against the loop with the thumb will loosen the tourniquet. The arm band of a blood pressure apparatus may be used to good advantage. In emergency, one may use a large handkerchief or a small towel folded into a bandage, the ends so knotted or twisted together that they may be readily loosened. The compression bandage must be loosened in such a way as not to jar the arm and perchance displace the needle. This is best done by an assistant; but it may be accomplished by the operator himself. If the vein does not become sufficiently prominent by constriction above, a dependent posture of the arm for a minute or two, having the patient close and open the fist for a few times, preliminary hot applications, stroking of the forearm toward the elbow, or applying an Esmarch bandage or other constriction from the wrist to near the elbow are maneuvers that usually suffice. It is important that the forearm rest on a firm support, so that it may be kept perfectly immobile. The arm should be overextended by means of a pad under the

91. Cited by Macht, D. I.: The History of Intravenous and Subcutaneous Administration of Drugs, J. A. M. A. **66**: 856 (March 18) 1916.

92. The technic of sinus puncture is as follows: The superior longitudinal sinus is entered at the posterior angle of the anterior fontanel, as here the sinus is wider and deeper. The bevel of the no. 26 needle to be used must be very short (2 mm.), as a long pointed needle might puncture the inner wall before the entire opening of the needle is through the pericranium. The needle is held at an angle of about 50 degrees with the plane of the anterior fontanel; it is inserted just in its center, the point directed backward. As soon as the needle has penetrated the skin, the piston is pulled on so that the suction may cause the blood to rush into the syringe the moment the sinus is entered. To push the needle through the firm pericranium, considerable force is required. The moment this resistance has been overcome, blood should enter the syringe, as the sinus lies immediately below the pericranium. If it does not, the needle has gone too far, and should be carefully withdrawn until blood appears in the syringe.

93. Linser: Med. Klin. **17**: 48 (Nov. 27) 1921. Fischer, Carl: Wien. klin. Wchnschr. **35**: 11 (Jan. 6) 1921.

94. Forsbeck, F. C.: Running Bow Line Tourniquet, J. A. M. A. **85**: 974 (Sept. 26) 1925.

elbow, so as to force the vein nearer the surface. It is preferable, though not absolutely necessary, that the patient be recumbent.

For disinfection of the skin, alcohol, preceded by soap and water, is preferred to tincture of iodine application, as the latter discolors the skin and renders the vein less visible. Needle and syringe may be boiled in water, or disinfected with alcohol.

An all glass 10 cc. syringe, preferably but not necessarily with an eccentric tip, is the single most important syringe for intravenous injection. This should be fitted with a 1½ inch 20 gage needle, preferably of tempered gold or platinum. The bevel of the needle point should be medium and straight,[95] not long and bladelike, short and flat or concave. If the vein is very small or quite movable or the skin tough, a smaller steel needle should be employed, a 22 to 24 gage (not smaller than 26 gage), from ½ to 1 inch long.

The vein should be kept from moving out of the way of the needle by downward pressure of the index finger of the left hand. The syringe, from which all air has been expelled, is held between the palmar surface of the fingers and the thumb. The needle, bevel up, is placed over the vein parallel to it, and at as acute an angle with it as possible. It is best to approach the vein laterally: for, when it is entered from above, the pressure is more likely to flatten the vein and lessen its distention. The needle is forced through the skin with a lifting motion, when a sudden cessation of the resistance and the appearance of a thin stream of blood in the syringe may indicate that the vein has been entered. If these signs do not appear, gentle downward pressure, while the needle is brought to practically a horizontal position and in line with the long axis of the vein, will make the needle enter the vein. Care should be exercised not to be so forceful in this movement as to transfix the distal wall of the vein as well. As soon as the needle has entered the vein, it is pushed perhaps one-third its length up the vein. The tension on the skin may then be relaxed. The piston of the syringe is now gently pulled on to make sure, by aspiration of blood, that the syringe is still in the vein, whereupon the injection may proceed. In general, the more slowly the fluid is injected the better, not more than 1 cc. per minute, and to do this it is advised to push the piston down with a screwing motion, turning it round and round, as in this manner the speed of the injection may be more accurately controlled. The injection should, of course, not be commenced until the constriction has been released, unless the quantity to be injected does not exceed 1 or 2 cc., when the constriction need not be removed until after the injection. To avoid escape around the vein of a few drops of irritant injection fluid, it is advisable to aspirate a little blood into the syringe before withdrawing the needle.

After the injection, pressure is immediately exerted on the point of the puncture for a few minutes by means of a sterile piece of gauze. Sealing the puncture with collodion or an adhesive plaster bandage is rarely required. It is well to have the patient rest in the reclining posture for at least an hour after a vein injection, if possible with the physician near at hand.

If a swelling should appear round the vein during the injection, indicating paravenous injection, further introduction of the fluid should cease at once, and the piston be pulled on to aspirate as much of the fluid around the vein as possible. A cold compress should then be applied.

Vein Infusion.—This is practiced by means of a graduated irrigator, or a funnel in an emergency, a 1½ yard piece of rubber tubing, a needle, and a connecting piece or adapter. While any needle may be used, a special needle bent at an angle and provided with a thumb and finger rest for greater convenience in handling, such as the Schreiber needle, is preferable. Local anesthesia may be employed, if desired, by infiltration of a drop or two of 2 per cent procaine hydrochloride solution. Stokes[96] describes the Schreiber technic as follows:

> The Schreiber needle is held like a pen, steadied by two fingers instead of one. Pressure is brought to bear on the patient's arm by the operator's right hand, while his left maintains tension of the skin. The right hand should relax a little and the needle be guided by thumb and forefinger rather than forced up the vein. The needle should be run up the vein as is done when the syringe is used. The movements of the needle in entering suggest those of vertical penmanship, and are accomplished by depressing the knuckles, keeping the wrist fixed rather than by moving the hand. The needle is free from the injecting apparatus before being introduced; and, after an uninterrupted flow of blood is assured, the operator uses his left hand to adjust the adapter, and can now begin the injection. Once this is begun, the operator should not release the needle or remove his right hand, if the vein has proved at all difficult to enter. While the Schreiber needle is being withdrawn, pressure should be made by the assistant just above the needle, and this, together with the precaution of shutting off the stream of injection fluid just back of the adapter and not higher up in the tube, as is usually done, will prevent any leakage.

A gravity apparatus for the slow intravenous administration of accurately measured quantities is described by Thalhimer.[97] By means of a Y tube and rubber tubing, a graduated buret is connected with the irrigator in such a way that the fluid is at the same level in the two. After the needle is inserted into the vein, the rubber tube from the irrigator is closed and the stopcock at the main outflow tube is gradually turned until the solution begins to flow very slowly from the buret. It is easy by watching the fall of the fluid in the buret to determine with the second hand of a watch how long it takes for the delivery of 1 cc. of solution. Then the solution is permitted to flow from the irrigator, which it does at the same rate as it flowed from the buret. Glucose solution has been given intravenously with this apparatus as slowly as 40 cc. an hour, for five hours. As a solution that is being given slowly cools in the tube before it reaches the vein, it should be warmed, as by an ordinary electric pad placed round the portion of the tube nearest the vein. A collodion seal and a strip of adhesive plaster serve to immobilize the needle.

G. A. Hendon,[98] having found needles unsatisfactory for prolonged vein infusion, as in connection with intravenous nutrition, advocates exposure of the vein and insertion of a cannula. He has devised for this purpose a cannula that has an obturator, two lateral openings and two shoulders, one over which the vein may be cuffed to hold it in position, and the other to

95. Steel, W. A.: M. J. & Record **121**: 26 (Jan. 7) 1925.

96. Quoted from Dutton, W. F.: Intravenous Therapy, Philadelphia, F. A. Davis Company, 1925, p. 148.

97. Thalhimer, William: A Simple Apparatus for Intravenous Administration of Glucose Solutions, J. A. M. A. **78**: 190 (Jan. 21) 1922.

98. Hendon, G. A.: Venoclysis or Intravenous Nutrition, Texas State J. Med. **21**: 662 (March) 1926.

fit beneath the suture line in the skin and add to the security of its position. The end is blind to prevent plugging and slightly beveled to admit of ready penetration through a slight nick in the vein, but not sharp pointed so that penetration of the opposite vein wall is avoided. The vein having been exposed under local anesthesia, the cannula is introduced beyond the first shoulder, with the obturator in place, and the vein is tied above the shoulder with catgut. The obturator is then removed, to make certain that the cannula is inside the vein; if it is, the blood will flow freely. The obturator is then replaced and the skin sutured over the second shoulder. In the meantime a sterile vacuum bottle has been filled with the fluid at the proper temperature and joined by a 10 inch length of rubber tubing to a glass bulb, like those sometimes used in proctoclysis, to render the drip visible. The rubber tubing at the other end of the glass bulb ends in a glass irrigating nozzle to which a section of rubber catheter from 6 to 8 inches long is attached to connect with the exposed end of the cannula. A convenient clamp is placed on the tube near the bottle and so adjusted as to regulate the rapidity of flow by turning a screw. The air in the tubing should be expelled by allowing the liquid to flow before connecting with the vein. After the connections are all made, the solution is turned on and allowed to run in a steady stream for a few seconds to give it impulse, after which, by tightening the clamp, the rate can be regulated to whatever speed is desired. Sixty drops per minute has appeared to be the most favorable rate. The next step is to secure the attachments so that the movements of the patient will not loosen them or cause any pull on the cannula. The tubing, including the glass nozzle, is laid along the forearm, to which it is secured by encircling the arm with strips of adhesive plaster about 1 inch wide and 2 or 3 inches apart. A gauze dressing is placed over the incision and a padded splint extending from the shoulder to the finger tips is bound with bandages to the posterior aspect of the extended arm, to prevent involuntary movements, especially flexion of the elbow. The bottle containing the fluid is hung on a stand at a convenient height and distance from the bedside. By means of this technic, giving 60 drops per minute or approximately 240 cc. per hour, Hendon has maintained administration of dextrose solution for 192 hours, or eight days and nights, actually delivering about 6,000 cc. to the circulation in the twenty-four hours.

Air pressure may be employed instead of hydrostatic pressure, as shown by an apparatus described by Burke.[99] It consists of a 250 cc. Erlenmeyer flask fitted by means of a perforated rubber stopper with two bent tubes, a short one and a long one. The short tube is connected by a piece of rubber tubing, about 18 inches long, to a compression bulb taken from a blood pressure apparatus. The long tube is connected by a piece of rubber tubing about 30 inches long to the side extension of a Kaufman-Luer syringe. A piece of glass tubing is inserted into this line about 8 inches from its distal end. To withstand the air pressure, all joints are reinforced by a piece of light copper wire, some of which is also twisted round the neck of the flask, one end left long so it can be bent over the rubber stopper and fastened to prevent it from coming out when pressure is applied. It is also necessary to encircle the piston of the syringe with a piece of wire, as the clip that comes with the syringe will not stand the pressure.

The Kaufman-Luer syringe, mentioned above, which may also be used with a gravity injection apparatus, has an opening on the side one-half inch back of the needle, where the solution enters. It has the advantage that it indicates definitely when a vein has been entered; for, if blood does not show when the piston is pulled back, one knows that a vein has not been punctured. When blood shows, one starts the flow of solution by drawing the piston back past the side opening. Another advantage of this syringe is that it is light and is easily handled. The flow of solution may be stopped by merely pushing the piston past the side opening.

The rate of flow in vein infusion should not exceed 500 cc. in ten minutes for physiologic sodium chloride solution, and should be still slower if the heart's action is enfeebled. It should also be much slower if an active chemical agent is injected. The total amount may range up to 500 and even much more, if it is given slowly enough and the need of the system is sufficiently great. In cases of shock, collapse or profound circulatory weakness, the operator should be guided by return of the pulse or improvement in its quality and the general condition of the patient, and should stop as soon as moderate amelioration has been attained; for it has happened that a patient, who was improving when 500 cc. had been infused, died by the time 1,000 cc. had been given.

The temperature of a solution to be given by vein infusion should be a few degrees above that of the normal blood, at about 105 F. If the stimulating effect of heat is desired, the temperature should range from 115 to 118 F. As the fluid cools during its passage through the tubing, the fluid in the reservoir should be kept about 1 degree F. higher for each foot of rubber tubing. In prolonged infusion, every effort should be made to maintain the desired temperature as constantly as possible throughout the administration, by the addition of hot fluid from time to time, by means of an electric heating pad, or by immersing a few coils of the rubber tubing in water at the desired temperature, or most conveniently by the use of a vacuum bottle.

(To be continued)

99. Burke, J. G.: An Air Pressure Method of Administering Arsphenamine, J. A. M. A. **77**: 2057 (Dec. 24) 1921.

Sterilizable Dialyzing Membrane.—Tests show that a new synthetic cellulose product (used principally for wrapping) for a sterilizable dialyzing membrane will probably make practical a whole field of bacteriology as yet hardly explored. Donna E. Kerr and Dr. H. W. Hill, director of the Vancouver General Hospital Laboratories, made these tests, which are described in part in the *Vancouver Medical Association Bulletin* for February: "In searching for a sterilizable dialyzing membrane, a suggestion came from the Christmas boxes of candy wrapped in glistening sheets of 'paper.' The resemblance of this material to thin sheets of collodion induced me to try its dialyzing powers, which, for silver nitrate, sodium chloride and glucose, proved perfect. The next step was to test its resistance to sterilization. Fifteen pounds of steam for twenty minutes in an ordinary laboratory autoclave left it unchanged in appearance, feel, etc. Its dialyzing powers were still unaffected. The various uses of such a membrane in physics, chemistry, and especially in bacteriology and biology, both scientific and applied, are obvious and need not be enlarged on here. With any household cement, sheets of it may be made into tubes, flat, square or round bags, etc. Diaphragms of it may be cemented across bowls, beakers or glass tubes. So far as we have been able to discover, this material, known as cellophane, has not been previously advocated as a sterilizable dialyzing membrane."

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SATURDAY, JULY 31, 1926

NARCOTIC CONTROL IN GREAT BRITAIN

Action has been taken in Great Britain to strengthen narcotic control. The regulations governing the manufacture, sale and professional use of narcotics are to be extended and reenforced, and they are to be made applicable to barbital (veronal) and other derivatives of barbituric acid. This is the result in part of an inquiry into the prevalence of morphine and heroin addiction by a Departmental Committee on Morphine and Heroin Addiction and in part of general agitation concerning the indiscriminate sale of barbital and similar drugs.

Morphine and heroin addiction are rare in Great Britain, according to the evidence collected by the committee. They have become less prevalent during recent years, according to the weight of the testimony, most witnesses attributing the decline to the Dangerous Drugs Acts, which have made it harder to get the drugs except from or through physicians. These acts, and the regulations made to carry them into effect, seem to proceed along lines somewhat different from those followed by similar legislation in the United States; for according to Sir William Willcox—

> In the difficult position created by the Dangerous Drugs Regulations it must be borne in mind that the object for which they were framed can only be satisfactorily attained by the loyal cooperation of the professions concerned with the State authorities. Drug addiction, to quote the words of the Departmental Committee on Morphine and Heroin, should with few exceptions be regarded as a manifestation of a morbid state, and not as a mere form of vicious indulgence. It is in this spirit that the Regulations in this country have been framed. They contrast favourably with the Regulations in America and some other countries where drug addicts are regarded as wilfully vicious persons, and are notified to the authorities before drugs can be supplied to them. Doctors even have to obtain a special license to prescribe the dangerous drugs.[1]

For the purposes of its report, the committee defined the term "addict" as meaning "a person who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired, as a result of repeated administration, an overpowering desire for its continuance, and in whom withdrawal of the drug leads to definite symptoms of mental or physical distress or disorder."[2]

Addiction to morphine and heroin is, with few exceptions, a manifestation of a morbid state; the drug is taken not to obtain positive pleasure, but to relieve a morbid and overpowering craving. The only immediate cause of addiction, however, the committee admits, is the use of the drug for a sufficient time to produce the constitutional condition that manifests itself in the overpowering craving and the occurrence of withdrawal symptoms when use is discontinued. The incurability of some addicts under modes of treatment that are open to them and the probable incurability of some under even the most thorough treatment is admitted by the committee. Incurability of such addicts is postulated on the fact that complete withdrawal produces serious symptoms which cannot be satisfactorily treated under ordinary conditions of private practice or on the fact that the addict is capable of leading a fairly normal life so long as he takes a certain nonprogressive quantity, usually small, of the drug of addiction, but ceases to be able to do so when the regular allowance is withdrawn. The indefinitely prolonged administration of morphine or heroin to such addicts the committee regards as legitimate medical treatment, but a physician should not assume responsibility for the continuous administration of the drug in any such case until after one or more consultants have approved that course.

Since "abrupt" or even "rapid" withdrawal of morphine or heroin cannot be carried out safely except under conditions usually found only in special institutions or nursing homes, the British committee concluded that gradual withdrawal will be with rare exceptions the only practicable method of treatment under the ordinary conditions of private practice. Institutional treatment affords the greatest hope of cure even when gradual withdrawal is attempted and is with rare exceptions indispensable to treatment involving abrupt withdrawal. Permanent cure requires a long period of care after the patient has become for the time being independent of the drug. His will power must be educated and his mental outlook changed. Conditions that brought about addiction in the first instance must be removed if practicable, and the possibility of improving the patient's social condition must be considered. A lasting cure cannot be claimed unless the patient has remained free from his craving for from one and a half to three years after the final withdrawal of the drug. Even the most optimistic observers who appeared before the committee, except two, did not claim more than from 15 to 20 per cent of such cures. Relapse sooner or later, according to the committee, appears to be the rule; permanent cure is the exception.

1. Lancet 1: 1071-1073 (May 29) 1926.

2. Report of Departmental Committee on Morphine and Heroin Addiction, London, 1926, p. 9.

To limit the danger of the development of narcotic addiction in cases in which narcotic drugs must be used, the committee advises the physician not to inform his patient of the name or the dose of the drug administered and to order only so much of the drug as will last until his next visit. Hypodermic injections should be the last resort, if the danger of addiction is to be kept at a minimum, and under no circumstances should a patient be allowed to administer a narcotic drug to himself hypodermically. A physician asked by a patient not previously under his care to prescribe or administer morphine or heroin is advised by the committee not to supply the drug in any quantity whatever unless satisfied as to the urgency of the situation, and in no case to administer or order more than is immediately necessary. If no organic disease can be found to justify the further prescribing or administering of the drug, it should be withheld until after the physician has obtained the patient's clinical history from his previous medical attendant. The committee suggests the possible value of judicious instruction of medical students in the precautions necessary to avoid creating addiction in the course of medical treatment.

The report of the committee contains no reference to the possible advisability of steps looking toward the withdrawal of heroin from the market, such as have been taken in the United States. Willcox, however, in addressing a conjoint meeting of the Southwest London Medical Society and the Southwest London Chemists' Association, May 5, opposed such action, believing that heroin has therapeutic properties not possessed by morphine or other drugs. It is, he said, more effectual than they for the relief of severe nerve pain; it does not cause constipation, and in some cases in which morphine is not tolerated, causing vomiting or excitement, heroin acts as a perfect hypnotic. The danger of addiction, however, must never be forgotten.[1]

Any action looking toward the inclusion of codein among the drugs covered by the Dangerous Drugs Acts Willcox thought unnecessary. He did not regard it as a dangerous drug, it is almost always taken by the mouth, not hypodermically, and in the course of an extensive toxicologic experience he had never met a case of codein addiction. The addition of codein to the list would greatly restrict the use of a valuable remedy and would cause endless inconvenience and hardship. The Departmental Committee took no notice of codein except such as is implied in the statement in its report that there is little, if any, abuse or danger of addiction arising from preparations at present excluded from the scope of the Dangerous Drugs Acts, with the possible exception of chlorodyne—codein being in fact one of the excluded drugs.

Quite apart from the activities of the Departmental Committee on Morphine and Heroin Addiction, the Home Secretary has taken action to include among the drugs within the purview of the Dangerous Drugs Acts diethylbarbituric acid and other alkyl, aryl or metallic derivatives of barbituric acid, whether described as veronal, proponal, medinal, dial, or any other trade name, mark, or designation, and any preparation, admixture or other substance containing any of them. None of these drugs is to be supplied at retail, except (*a*) to a duly qualified practitioner, (*b*) for use in hospitals or similar public institutions, (*c*) to persons authorized by the Secretary of State, or (*d*) on or in accordance with a prescription given by a duly qualified medical practitioner. A prescription must be dated and signed by the practitioner and bear his address, and must show the name and address of the patient for whom the drug is ordered. These drugs are not to be supplied more than once on the same prescription, except that the prescribing physician may on one prescription direct that the drug be supplied not oftener than three times. Physicians who dispense such drugs must keep records of such as they dispense. As the basis for the promulgation of regulations to restrict the sale of barbital and related drugs, the Home Office experts produced copious evidence of deaths caused by them, particularly by barbital—sometimes suicidal, but perhaps more frequently from accidental overdoses taken for sleeplessness. London experience, it was stated, showed that in this respect barbital was the most dangerous drug in the Pharmacopeia.[3]

THE BEHAVIOR OF THE PYLORUS

The physiologist thinks of the pylorus primarily as a barrier marking the boundary between the seat of digestion in an acid medium and a region enriched with alkaline secretions, apparently subject to delicate control mechanisms of some sort. To the clinician it is a region frequently the seat of neoplasms and other structural as well as functional abnormalities. Pyloric obstruction and pylorospasm are common phenomena of medical interest and remedial concern. The fact that the pylorus is not continually patent is the starting point for theories of its function. It has repeatedly been noted in THE JOURNAL[4] that the long acclaimed acid control of the sphincter is not tenable in the light of accumulating evidence. In essence the theory postulates, first, that the discharge of foodstuffs is "occasional," and, secondly, that this irregularity is determined by the time necessary for the acid to reach the proper reaction on the gastric side to open the pylorus, and then by the time necessary to neutralize the acid when it has reached the duodenum. It is currently concluded from roentgen-ray evidence in animals and in man, and from experimental evidence in animals, that the pylorus is normally open at the height of antral contraction, and that every antral contraction is normally followed by the discharge of

3. Brit. M. J. **1**: 875 (May 22) 1926.

4. The Control of the Pylorus, editorial, J. A. M. A. **75**: 1648 (Dec. 11) 1920; The Motility of the Pyloric Sphincter, ibid. **76**: 729 (March 12) 1921; The Pyloric Sphincter and Duodenal Motility, ibid. **78**: 1205 (April 22) 1922; The Acid Reflex of the Pylorus, ibid. **82**: 1784 (May 31) 1924.

chyme through the pylorus. It now seems probable that acid on the duodenal side is just as unnecessary for the mechanism of emptying the stomach as it is on the gastric side. Summarizing the effects of chemical factors, Klein [5] concludes that the presence of acid on the gastric side is not necessary for the opening of the pylorus. Normal concentrations of acid on the duodenal side do not keep the pylorus closed. Concentrations of acid higher than normal in the stomach cause a slowing of gastric peristalsis, and while this is especially notable in concentrated experimental solutions, it is, however, also noticeable within the limits found in hyperchlorhydria. Very strong acids cause a complete inhibition of peristalsis, and even reverse peristalsis and vomiting. The site of origin for this reflex is the duodenum.

The failure of the theory of acid control to afford a satisfactory explanation of the ordinary behavior of the pylorus during alimentation inevitably directs attention to the mechanical factors that may play a directive part. Klein believes that a better understanding may be secured by revising our conception of ordinary pyloric closure. He remarks that the latter is in reality ordinarily due to a state of tone that the pylorus, relaxed during gastric rest, assumes after the entrance of food into the stomach. Of course, Klein adds, if a circular ring of muscle becomes moderately tonic, and there is nothing within its lumen, its margins will be in contact. In that sense the pylorus may be said to be closed. But normally that state of tone is less than the pressure to which the fluid contents of the antrum are subjected by the advancing peristaltic wave. And so this wave during its progress through the antrum partially overcomes the closure and forces chyme in a continuous stream through the ringlike opening of the pylorus. The size of this ring will depend on the amount of tone of the pylorus on the one hand, and on the pressure created by the peristalsis on the other. During the larger part of the gastric cycle, then, the pylorus is open, and chyme is being forced through it. It is difficult to say where the tone stimulus to the pylorus arises, but it seems probable that it usually comes after some of the fluid has been passed into the duodenum.

In the light of the investigations [5] at the Columbia University College of Physicians and Surgeons, fluidity of the chyme in the antrum is the factor of prime importance for its expression. Solid bodies that by chance get into the antrum are carried back into the body by retrograde peristalsis. Each advancing peristaltic wave overcomes the tone of the pylorus and forces some of the chyme into the duodenum, regardless of whether the reaction of the chyme is neutral, acid or alkaline. Firm, decisive closure of the pylorus occurs at the termination of each peristaltic wave when the latter has reached the sphincter and after it has forced the chyme into the duodenum, regardless of whether the reaction of the chyme is neutral, acid or alkaline. Firm, decisive closure of the pylorus occurs at the termination of each peristaltic wave when the latter has reached the sphincter and after it has forced the chyme into the duodenum. It effectually prevents any regurgitation. Studies on the pylorus, as Klein asserts, must distinguish between the effects due to each of these two distinct phases: first, the tone of the sphincter, and, second, the gastric cycle consisting of the peristaltic wave and its culmination at the pylorus, producing the closure of that sphincter. In his opinion this conception is not open to the objections advanced against the other theories, and it is consistent with the known facts of gastric motility and digestion.

5. Klein, Eugene: Gastric Motility, III, The Mechanism of the Pylorus, Arch. Surg. **12**: 1224 (June) 1926.

TRAINING HEALTH SPEAKERS

The obligation of the physician to aid in the medical and health education of the public is being more and more completely realized. Health talks and addresses constitute an effective means of disseminating useful information, provided they are properly prepared and effectively delivered. The demand from lay organizations for such health talks has grown tremendously. When a local organization, such as Kiwanis, Rotary, Lions' or similar clubs, the Y. M. C. A., chambers of commerce or women's clubs, is planning a program of speeches for its weekly or monthly meetings for the year, the committee of arrangements is likely to include one or more talks on health topics. In Kansas City, for example, there are more than 1,500 group meetings annually, including 122 lunch clubs meeting weekly, parent-teacher associations, fraternal societies, lodges and school assemblies. If only one health talk a year were given to each of these groups, it would require of fifty physicians thirty talks each to supply the demand. The physicians of that city have taken steps to fit themselves for this service. The Health Conservation Association of Kansas City, composed of eight volunteer medical organizations devoted to cancer control, tuberculosis, infant welfare, dental hygiene and other health movements, has appointed a publicity committee. Cooperating with the county medical society, it has organized the Kansas City Public Health Institute to provide instruction for physicians who desire to prepare themselves to give health talks to laymen.

A course of twelve lessons is being given, two evenings each week, consisting of lectures and talks by persons of experience in this work with the assistance of a teacher of public speaking. Seventy-five physicians have enrolled for the course, paying tuition fees to defray the expense. Doubtless some members of the class will find that they are not qualified to become effective speakers. Those who are found to possess talent for such service will find the course helpful in improving their ability.

If the demand for health talks is to be met successfully, physicians must be able to speak effectively about medical and health matters, in language intelligible to a nonmedical audience. Timely topics of vital interest to the audience should be presented in a manner that will not alone impart information but also arouse hearers to active efforts for the betterment of health conditions both of the individual and of the community.

PHOSPHORUS IN THE BODY

In recent years the importance of the inorganic nutrients for the welfare of the body has been realized. Although it is easier to awaken popular enthusiasm for the scientific aspects of calories, proteins and vitamins in nutrition than of the mineral factors, much interest has lately been evinced with regard to the need and rôle of calcium, particularly during the years of growth and, in the female, during periods of pregnancy and lactation.[1] Judging by experiments on animals, the average man has about twenty times the body weight with which he was born and about 340 times as much calcium as did the body at birth. The mineral components of the body obviously cannot be synthesized like some of the organic constituents; they must be furnished in the food and drink and, furthermore, must be adequately absorbed. As the skeleton contains more than 95 per cent of the calcium of the body, failure of calcium utilization exhibits itself conspicuously in the bony structures. The modern study of rickets has thrown light on such facts and fixed attention on the bodily penalties of inadequate or improper calcium assimilation.

Phosphorus is perhaps even more widespread in the body than is calcium. The adult normally multiplies his original store of phosphorus by about 150. The speculations about the physiologic rôle of this element have been far more diffuse. One may read about phosphorus in relation to nerves and glands, blood and muscle; but after all the major consideration, from the quantitative standpoint, is the fact that phosphorus is a companion element to calcium in the calcium phosphate deposition in the bones. The recent studies of Sherman and Quinn[2] at Columbia University give further emphasis to the fact that the gains and losses of calcium and phosphorus in the body, while not arithmetically parallel, are nevertheless chemically interdependent. The calcium intake may be the limiting factor as regards the storage of both calcium and phosphorus in the organism. According to the New York investigators, the bearing and nursing of young cause a loss of body phosphorus coincident with that of body calcium but less pronounced in degree. The tendency to regain the mineral elements thus lost is also observable about proportionately for the two elements. It seems probable that these losses occur primarily because of the drain of lactation on the mother's body calcium, causing losses from the bones since there is little other available store of calcium in the body, and that the withdrawal of calcium phosphate from the bones to furnish material for milk production results in simultaneous losses of calcium and prosphorus in about the proportions in which they exist in the calcium phosphate of the bones.

It is thus established that paucity of calcium may become a "limiting factor" for the use of phosphorus. The converse of this, namely, that a deficiency of phosphorus in food may retard the deposition of calcium phosphate in the bones and thus the storage of both calcium and phosphorus by the body, and that in such case the addition of a phosphate to the diet will induce the increased storage of calcium as well as of phosphorus, has also been demonstrated. These two elements resemble Siamese twins in their mutually advantageous nutrient interrelationships. Fortunately, a diet adequate in calcium is in general likely to be satisfactory with respect to phosphorus. The reverse is by no means equally probable.

1. Calcium Demands in Pregnancy, editorial, J. A. M. A. **81**: 834 (Sept. 8) 1923; The Calcium Factor in Tetany, ibid. **83**: 1081 (Oct. 4) 1924; Alimentary Factors Influencing Absorption of Calcium and Phosphorus, ibid. **83**: 1850 (Dec. 6) 1924; The Need of Calcium, ibid. **85**: 1065 (Oct. 3) 1925.

2. Sherman, H. C., and Quinn, E. J.: The Phosphorus Content of the Body in Relation to Age, Growth and Food, J. Biol. Chem. **67**: 667 (March) 1926.

Current Comment

THE DE FOREST-BALDWIN "ADJUSTMENTS"

Chiropractors and osteopaths in their advertisements today are playing up a newspaper story regarding the alleged results of certain so-called research work done in the anatomic laboratory of the Ithaca Division of the Cornell University Medical College. It seems that Dr. Henry P. de Forest of New York City and Dr. Horace G. Baldwin of Tannersville, N. Y., were permitted to work in the laboratory just mentioned, because they desired to determine whether there was any anatomic basis that would explain the relief of certain symptoms which was said to follow manipulations which they performed. The de Forest-Baldwin thesis seems to be that a wide train of symptoms are caused by "sacro-iliac dislocation" and that manipulations that "reduce" this result in cure. No member of the staff of the medical college was engaged in the investigation, and according to the professor of anatomy at Cornell, neither Dr. de Forest nor Dr. Baldwin was able to demonstrate any anatomic basis that would explain either the alleged symptoms or the alleged results. Nevertheless, wide newspaper publicity has been given to the de Forest-Baldwin performances. According to these news articles, both of the men have successfully treated thousands of cases by their peculiar methods, and the conditions claimed to be susceptible of cure by these methods are diabetes, Raynaud's disease, sciatica, nervous prostration, neuritis, angina pectoris, etc. The medical profession might, charitably,

have supposed that Drs. de Forest and Baldwin had been the victims of some overenthusiastic newspaper reporter, but a letter written by Dr. de Forest during the past few days makes such charitable excuses difficult of application. A woman, suffering from diabetes, who read the newspaper puffs of Drs. de Forest and Baldwin, wrote to the first-named physician about her case. Dr. de Forest answered in the following words:

Whether I have discovered a cure for diabetes or not is a debatable question. My medical friends for the most part do not agree with me. The patients, not a very large number it is true, but still enough to enable me to form an opinion, do not agree with my medical friends, for they are getting well, or have entirely recovered. Whether your condition is one that is amenable to this particular form of treatment I could not tell without a personal examination and an accurate diagnosis. This could only be secured by your coming to New York for the examination. If you decide to do this it must be by appointment, and it will be at least two weeks before I can fulfil my present engagements.

DOSE AND EFFECT

Many fluctuations in the ideas of maximum, minimum and optimum dosage are recorded in the history of medicine. Common sense in this regard has grown hand in hand with the development of scientific medicine, and both huge and infinitesimal doses have, for the most part, disappeared from practice. Recently Cameron[1] and Mackersie have experimented with products of internal secretion, indacontine, strychnine and nitrate ion. The results obtained indicate that although sufficiently large doses either cause toxic effects and death or are limited by rapid excretion, nevertheless, over a limited range, dosage bears mathematically demonstrable relation to effect. This work would seem to be a good answer, if an answer is needed among intelligent men, to the claims of drugless and near-drugless cults, sects and philosophies. Its scientific value rests in the equation which has been evolved, and by which it may be possible to standardize the dosages of different drugs and calculate the effects of different doses of a given drug.

SEYMOUR PLAN FOR DISEASE PREVENTION

At the conference of State and Provincial Authorities of North America held in Atlantic City in May, Dr. M. M. Seymour, deputy minister of public health of Saskatchewan and president of the conference, proposed a plan for "drives" against diphtheria, smallpox and typhoid. In brief, the scheme provides for devoting two months each during the coming year to diphtheria, smallpox and typhoid. Thus, during September and October a survey is to be made of the incidence of diphtheria, and everything possible done to educate the public concerning its nature. At the same time, immunization or vaccination of the individual will be encouraged. The plan proposed was adopted by the conference and, no doubt, will become effective with the month of September. Smallpox is to be the subject for November and December, and typhoid for January and February, 1927. The Seymour plan is obviously an attempt to apply to the prevention of disease the well established psychology of the "drive." Our public has been educated to "crowd action." In the organization, the press, the pulpit, the school and every other medium of education are to be employed. The prevention of communicable disease, even when the cause, the mode of transmission and the method of prevention are thoroughly known, is constantly obstructed by an apparently inevitable minimum of ignorance and carelessness. It may be that these factors can be overcome only by such an intensive drive as Dr. Seymour has proposed. The work will, of course, be carried on in every state and province of the United States and Canada as a separate activity of the local health authorities. Physicians will naturally cooperate in the fullest with any soundly established plan which their local authorities may initiate.

1. Cameron, A. T., and Mackersie, W. G.: The relation of Stimulus (Dose) to Effect, J. Pharmacol. & Exper. Therap. 28:9 (July) 1926.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Hospital Boat on the Yukon.—Dr. Curtis W. Welch, Nome, has been placed in charge of the hospital boat *Martha Angelina*, which was turned over by the Alaskan Railroad to the bureau of education, department of the interior, in order to provide medical relief to persons living in scattered communities along the Yukon River; two nurses also have been assigned to this work. The federal government has expended about $150,000 in the last year for the medical relief of native Alaskans. The bureau of education expects to establish a hospital at Tanana, of which Dr. Welch will be in charge when the summer work on the Yukon is completed.——A new general hospital, costing about $250,000, was recently opened at Wrangell.

CALIFORNIA

Dr. Wakefield Sentenced.—Dr. Orin R. Wakefield, Hollywood, was recently sentenced to four years' imprisonment for violation of the state narcotic act, it is reported; according to the testimony he sold morphine to a "movie extra" who was an addict. As noted in another item, Dr. Wakefield's license was revoked by the state board of medical examiners, July 13.

Personal.—Dr. Joseph B. Blackshaw has been appointed city health officer of Antioch to succeed the late Dr. Worth S. George, and Dr. John Rollin French has been appointed city health officer of Avalon to succeed Dr. Robert V. Baker. ——Dr. Stanley H. Mentzer, formerly a fellow in surgery at the Mayo Foundation, has accepted a teaching position in surgery at the University of California.

New Full-Time Health Units.—Yolo and Riverside counties organized full-time county health units early in June; other counties in the state already having full-time health units are San Diego, Orange, Los Angeles, Santa Barbara, San Luis Obispo, Monterey and San Joaquin. Yolo County has agreed to take over the work of public health administration of the city of Woodland; in Riverside County the new health unit will have to do only with unincorporated territory.

Resolution About Maternity.—The Santa Cruz County Medical Society devoted a meeting recently to the subject of "What May Santa Cruz County Do to Decrease Maternity Hazards?" at which an analysis of maternity statistics for the years 1923 and 1925 was presented. The society passed a resolution to the effect that hereafter the maternity fee shall include all necessary prenatal and postnatal (one month

after birth) service to mother and infant, and that all physicians and health agencies be requested to assist in broadcasting the reasons for this action.

Licenses Revoked and Suspended.—At the regular meeting of the state board of medical examiners, San Francisco, July 13-15, the licenses of the following physicians were revoked:

Charles R. Elliott	Rupert E. McKibbon
Franklin E. Kerr	Arthur B. Nelson
Robert J. McAdory	Orin R. Wakefield

The license of Dr. Clarke S. Smith was suspended by the board for five years, commencing July 14, 1926.

More Physicians on Probation.—At the meeting of the state board of medical examiners, San Franciso, July 13-15, Dr. Robert Innis Bromley was placed on five years' probation and required to give up his narcotic permit, and not receive or apply for another within one year after July 15, 1926; Dr. James T. Brown was placed on five years' probation, beginning July 13, and required to give up his narcotic and alcohol permits during the period of probation; Dr. Jacob L. Owen was placed on five years' probation, commencing July 13; he shall not apply for or receive narcotic or alcohol permits during the term of probation; Dr. Casper L. A. Rinker was placed on five years' probation, commencing July 15, and he shall not apply for or receive a narcotic permit during the period of probation.

Promotions at the State University.—The following promotions in the faculty of the University of California Medical School will be effective for 1926-1927:

Dr. Alice F. Maxwell to associate clinical professor of obstetrics and gynecology.
Dr. Saxton T. Pope to associate clinical professor of surgery.
Dr. Margaret Schulze to assistant professor of obstetrics and gynecology.
Dr. Henry H. Sears to assistant professor of surgery.
Dr. Miriam E. Simpson to assistant professor of anatomy.
Dr. Frederick Eberson to assistant professor of medicine.
Dr. Francis S. Smyth to assistant professor of pediatrics.
Dr. Bradford F. Dearing to assistant clinical professor of pediatrics.
Dr. Frieda L. Kruse to instructor in pediatrics.
Dr. Lloyd E. Hardgrave to instructor in pediatrics.
Dr. Kunisada Kiyasu to instructor in pediatrics.
Dr. Thomas E. Gibson to instructor in urology.
Dr. Ina M. Richter to instructor in medicine.
Dr. Elizabeth A. Davis to instructor in medicine.
Dr. Dorothy W. Atkinson to instructor in medicine.
Dr. John J. Sampson to instructor in medicine.
Dr. Robert Emmett Allen to instructor in medicine.
Dr. Robertson Ward to instructor in surgery.
Dr. Dudley A. Smith to instructor in surgery.
Dr. Jessie L. P. Delprat to instructor in medicine.

Society News.—Dr. Frances Eastman Rose, Spokane, Wash., president, Medical Women's National Association, was guest of honor at a luncheon of the San Diego Medical Women's Club, June 11.——The San Joaquin County Medical Society held its last meeting of the season in June at W. B. Walker's ranch, eight miles east of Stockton, where the society voted to dispense with all business and make the meeting a social evening; after "a big feast in the open air," however, they adjourned to the house and Dr. Fred P. Clark gave an outline of the history of the society from its beginning in 1875; G. A. Werner, Ph.D., professor of history in the College of the Pacific, spoke on "Evolution"; there were also dancing and cards.——The San Mateo County Medical Society voted at its June meeting to bar from membership any physician who engages in the type of work requested by the "American National Health Service," which has been attempting to appoint physicians in the county to look after its policyholders at "compensation rates."——Dr. Leon H. Watkins, Los Angeles, addressed a joint meeting of the San Diego County Medical Society, recently, on "Urologic Aspects of Obscure Abdominal Pain."

CONNECTICUT

Dr. Campo and Others in "Dry" Raid.—Dr. Anthony R. Campo, Noroton, formerly a member of the notorious eclectic medical examining board, was arrested July 17, it is reported, and released on $1,500 bail on a charge of violating the Volstead act. The police are said to have raided a supposedly abandoned house on the premises of the "Noroton Relief Hospital," of which Dr. Campo is proprietor, and in which 5,000 gallons of alcohol, five stills, some wine and whisky were seized; others taken in the raid are said to have been Vito Palermo, Carmela Vita, Joseph Modica and Frank Biondo, all of Brooklyn (THE JOURNAL, Nov. 24, 1923, p. 1794).

Tuberculosis Work in New Haven.—Following a conference of organizations especially interested in tuberculosis work in New Haven, it was decided to carry on the work as a united community effort, beginning September 1, when there will be established a bureau of tuberculosis in the department of health with Dr. Willard B. Soper, Saranac Lake, N. Y., medical director of the bureau. For the first year, there is a budget of almost $12,000, exclusive of the supervisor and the nursing service; the General Hospital Society will contribute $5,700, the board of health, $5,250, and the Employees Tuberculosis Relief Association, $1,000. The new program will not be primarily a demonstration but a community effort that will be more economical and more effective.

GEORGIA

Personal.—Dr. Thomas J. McArthur, Cordele, has been appointed a member of the state board of medical examiners.——Dr. John D. Jungmann tendered his resignation as city health officer of Columbus, May 24.

University News.—Mrs. St. John Moore, Augusta, has given the Medical Department of the University of Georgia $10,000; Mr. A. S. Bourne has given to the department of internal medicine an electrocardiograph, which has been installed in the University Hospital.

Physician Sentenced.—John W. Ward, M.D., Soperton, pleaded guilty to violation of the Harrison Narcotic Law before Judge Barrett at Savannah, July 2, it is reported, and was sentenced to one year and a day in the penitentiary. Dr. Ward is said to have served a sentence at Atlanta previously for a similar offense.

Society News.—Troup County Medical Society recently held a medical clinic at Dunson Hospital, La Grange, which was attended by almost every physician in the county. Dr. William J. Cranston, assistant professor of medicine, University of Georgia Medical Department, and Dr. William A. Mulherin, clinical professor of diseases of children at the university, were in charge of the clinics. The Troup County Medical Society is one of the 100 per cent county medical societies in the state.

ILLINOIS

Forty-One Counties Have No Deaths from Diphtheria.—The mortality from diphtheria in Illinois last year was the lowest on record; there were forty-one counties with a total population of about 1,000,000 persons which reported no deaths from diphtheria, and the rate for the state was 5.8 per hundred thousand of population. Among the cities of 30,000 population or more, says the state health director, the highest diphtheria mortality was in Quincy, 13.1; Cicero, 12.8, and Moline, 11.7; the lowest mortality rate in this group of cities was in Peoria, 1.2, and Rockford, 1.3. Chicago had a diphtheria mortality rate of 8. The state distributes toxin-antitoxin without local cost to immunize against diphtheria, and parents who wish their children immunized only have to make arrangements with a local physician.

Hoxide Cancer Cure.—Harry M. Hoxsey, head of the "National Cancer Research Institute" of the "Hoxide" cancer quackery at Taylorville, was ordered arrested by states attorney Preihs, July 23, it is reported, on a charge of practicing medicine without a license; at the same time a warrant was issued for "Dr." S. Arvid Person, the institute's superintendent. Reports at first indicated that neither Hoxsey nor Person was to be found; later they were reported as having been arraigned and released under bonds of $1,000 each. Further information about these gentlemen, and the "National Cancer Research Institute" can be found in THE JOURNAL, January 2, in an article prepared by the Propaganda Department. The present action was taken by the state board of registration and education through the the activity of the assistant director, Mr. Samuel L. Antonow.

Report on Health Education.—At the annual meeting of the Illinois State Medical Society, the lay education committee reported that 914 educational talks had been made in the last year, at an average expense to the society of $2.86, in seventy-nine of the 102 counties in the state. This indicates, it is said, that many speakers not only donated their services but also paid their traveling expenses; ninety-two radio talks broadcast during the year cost, on an average, $1.15, and that was largely clerical. The committee organized and arranged, during the year, 145 exhibits and demonstrations on health education at an average cost of $24.60; these varied from simple exhibits of posters lent to rural schools to elaborate demonstrations of periodic health examinations. There were two community health pageants conducted in Chicago, costing about $5,000 and $5,750, and the receipts in each case just

about covered the cost. The committee does not recommend the health pageant as a method to be widely used, as its successful conduct means the neglect of other state work equally vital. Supplementing the film service of the state department of health, 131 moving pictures obtained from the University of Wisconsin, the Metropolitan Life Insurance Company, the American Dental Association and the Society for Visual Education were shown before lay audiences. The most effective use of the press, the committee considers, is the "health columns," which appeared in fifty-seven down-state publications, each over the signature of the local county medical society, except in one county where it appears without a signature, and in another where it is used in the name of the county public health association. The committee reports on other educational activities and makes recommendations about educational work among laymen.

LOUISIANA

The "Grace George" Visits Mississippi.—At the request of the state health officer of Mississippi, the laboratory boat of the Louisiana State Board of Health, the *Grace George*, made a trip to the Tri-State Health Officers Conference on oyster and milk regulations at Gulf Port; the mayor of Biloxi requested that the boat visit that city also so the "oyster men" might see the boat's equipment. The *Grace George* at present is working in the Terrebonne and Barataria areas; it will soon take up an investigation of the bathing beaches on Lake Pontchartrain, and visit the oyster producing areas in the western part of the state. The boat was put in service, May 10, making its first trip to the Louisiana marsh, then making a sanitary survey of Bayou Bienvenue into which drainage from the city of New Orleans flows; then making a study of the oyster producing areas east of the Mississippi, and those of the Grand Bayou, and other sections east of the river. The boat, which is 48 feet long, is equipped to conduct various laboratory examinations, and has a personnel capable of conducting sanitary surveys.

MASSACHUSETTS

Hospital News.—There is to be a campaign for $350,000 to erect a new Framingham Union Hospital.——Dr. Lewis F. Baker has resigned as superintendent of the Burbank Hospital, Fitchburg, to become superintendent of the Union Hospital, Fall River.

Milk Conference.—The state commissioner of health and the milk producers held a conference, June 26, at the State House, Boston, to consider regulations for the handling and production of milk to submit to the legislature next winter. A bill was introduced in the last legislature which would prevent the sale of milk from cows not tuberculin tested, and of milk which had not been pasteurized.

MISSOURI

Personal.—The governor announced, June 30, the appointments of Drs. William A. Clark, Jefferson City, Herman S. Gove, Linn, and Elmer T. McGaugh, Richmond, as members of the state board of health.

Contractor Eichelberger Fined.—John D. Eichelberger, St. Louis, a contractor, was recently found guilty by a jury, it is reported, of practicing medicine without a license, and was fined $500. Inspectors of the health department who arrested Eichelberger testified that he had treated a patient for stomach trouble.

Kansas City Annual Clinical Conference.—The fall conference of the Kansas City Clinical Society will be in Kansas City, October 11-14, at the Hotel President. The program will include scientific motion pictures from 9 to 10:30 in the morning, followed by medical clinics and lectures. The round table luncheons will be ranged into medical and surgical groups, and those present may spend their mornings either at the clinics at the hospitals, or at lectures on the roof garden of the hospital. The guests will include Dr. Dean Lewis, professor of surgery, Johns Hopkins University, Baltimore; Dr. Clemens Pirquet, Vienna, Austria; Dr. Irving W. Potter, Buffalo; Dr. Thomas McCrae, Philadelphia; Dr. Edwin W. Ryerson, Chicago; Senator Royal S. Copeland, New York; Dr. Williams McKim Marriott, St. Louis; Dr. Arthur L. Chute, Boston; Dr. Frank H. Lahey, Boston; Dr. Percy Brown, New York; Dr. James J. King, New York, and Dr. F. Hoeffer McMechan, Avon Lake, Ohio.

NEW YORK

Conference of Health Officers.—The annual Conference of Health Officers and Public Health Nurses will be held in Buffalo, October 12, at the Statler Hotel during the annual meeting of the American Public Health Association. Among the subjects for discussion are "What New York State Is Doing for Cripples," "Progress of the Toxin-Antitoxin Campaign in New York State," and "Progress of Infant and Maternity Hygiene Work in New York State."

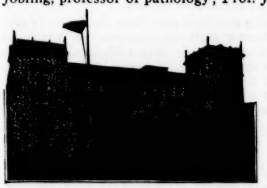
Society News.—The surgeons in Queens County have organized the Queensborough Surgical Society and elected Dr. Denis E. McMahon president, and Dr. Joseph S. Thomas, secretary.——The Westchester County Tuberculosis Committee has opened Camp Waymore for the third season; about fifty undernourished children will spend part of the summer there.——Dr. Raymond B. Scofield has been elected president of the Yonkers Practitioners' Club for the ensuing year.

Licenses Granted Last Year.—According to the annual report of the commissioner of education of the state of New York, the board of regents of that state granted licenses and certificates to practice to 823 physicians, twenty-one osteopaths and sixty-two optometrists. The regents also issued licenses and certificates to dentists, oral hygienists, pharmacists, junior pharmacists, druggists, veterinarists, engineers, land surveyors, nurses, shorthand reporters, public accountants, architects, trained attendants and chiropodists. The total of professional licenses and certificates granted was 7,654.

New York City

Hospital News.—Lincoln Hospital has opened a cystoscopic clinic for those who are unable to pay private physicians; patients will be admitted to the clinic on Tuesdays and Thursdays between 10 and 10:30, and Dr. Isidor Palais will be in charge.

Opening of School of Tropical Medicine.—In a new three story building in San Juan, near the sea, the School of Tropical Medicine of the University of Porto Rico, under the auspices of Columbia University, will be formally opened, September 22, and the first session will begin, October 1. At the formal opening, Columbia University will be represented by Dr. William Darrach, dean and professor of clinical surgery, College of Phyicians and Surgeons; Dr. James W. Jobling, professor of pathology; Prof. James C. Egbert, Ph.D., director of university extension, and Mr. Frederick Coykendall of the board of trustees. The governor of Porto Rico, Hon. H. M. Towner, president of the senate, Hon. Antonio R. Barceló, chairman, board of trustees, University of Porto Rico, and Dr. Darrach will deliver addresses. This is the first school of its kind to be established in the Americas; its primary aim is to give an opportunity to study tropical diseases in a tropical environment, and to observe the influence of exotic conditions on diseases in general. The courses offered are primarily for graduates in medicine; women will be admitted on the same terms as men. There will be a limited number of investigators to engage in research, and field work on the island may be carried on through the cooperation of the department of health. There are well equipped laboratories and a library in the new building, and a forty-bed hospital will soon be erected by the insular government. Pending the construction of this hospital, clinical instruction will be given at the Leper Hospital, the Presbyterian Hospital and the Quarantine Hospital, all near the school. A certificate in tropical medicine will be granted graduates in medicine who complete at least one year's work in residence, part of which must involve research in the preparation of a thesis. The faculty includes, among many others, the names of Dr. Robert A. Lambert, director of the school, Dr. Bailey K. Ashford, a collaborator, Dr. Aldo Castellani, visiting lecturer for 1926-1927, Dr. William T. Councilman, and a number of prominent Porto Rico physicians. For further information apply to the director of the school at San Juan, or to the dean of Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street, New York.



OHIO

Hospital News.—The Deaconess Hospital, Cincinnati, is to construct soon a $500,000 addition, which will provide 100 beds.——The Stillwater Sanatorium, which is supported by Montgomery and Preble counties, is contemplating a $500,000 addition for tuberculous patients.

Illegal Practitioners.—The state medical board reports that C. W. Ferguson, an unlicensed chiropractor, Columbus, was recently fined $100 and costs; L. Baugher, Fostoria, an unlicensed chiropractor, was fined $25; V. T. Deville, a naturopath, Columbus, recently forfeited his bond in municipal court; H. S. Gildard, Lakewood, was fined $100 for opening an office before he obtained a certificate.

Personal.—Dr. John H. J. Upham, Columbus, a trustee of the American Medical Association, delivered the annual oration in medicine at the recent annual meeting of the West Virginia State Medical Society, Morgantown.——Dr. John B. May, New Holland, recently observed his eighty-fourth birthday; Dr. May, it is said, seldom misses a meeting of the county medical society.——Dr. Charles H. Ross, Alliance, recently addressed the Pre-Medics Club of Mount Union College on "Advance in Medicine," and Dr. Oscar M. Craven, Springfield, addressed the students at Wittenberg College on "Purchasing Health."——Dr. Carlyle W. Dewey has been appointed coroner for Ashtabula county.——According to the *Ohio State Medical Journal*, Dr. Charles W. Moots has gone abroad to read a paper at the annual meeting of the British Medical Association at Nottingham, England.——The state medical journal notes that the following physicians are candidates for nomination for public office at the August primaries: Dr. Albert S. Rudy, Lima, councilor of the state association from the Third District, Dr. Daniel C. Houser, Urbana, councilor from the Second District, Dr. Charles F. Talley, Powell; Dr. Errett LeFever, Glouster, and Dr. Harry S. Davidon, Akron, are said to be candidates for renomination. ——Dr. Kenneth L. Weber, formerly of the U. S. Veterans' Bureau Hospital, Little Rock, Ark., has been appointed first assistant physician at the State Hospital, Lima, to succeed Dr. Wilhelm H. Vorbau, who is now at the state institution for the feebleminded at Orient; Dr. Weber formerly served three years at the Lima State Hospital.——Dr. Theodore F. Myler, Washington Court House, health commissioner of Fayette county, has been appointed resident physician to the Old Soldiers' and Sailors' Orphans' Home, Xenia.——

Society News.—The June meeting of the Eighth Councilor District Medical Society was attended by 112 members and guests; following a dinner party, Dr. George W. Crile, Cleveland, gave an address on "Functions of the Liver in Health and Disease," and Dr. Leora G. Bowers, Dayton, president of the state medical association, on "Postgraduate Medical Work"; Dr. Philip H. Cosner, Newark, president of district medical society, presided.——Fees totaling $800, received by physicians of Bellaire for services rendered during the Powhatan mine disaster, were donated to the Bellaire City Hospital.——The physicians of Defiance have arranged to close their offices Thursday afternoons during the summer, and have agreed on relief physicians during this period.—— Dr. Arthur C. Bachmeyer, dean, University of Cincinnati College of Medicine, recently addressed the Cincinnati Academy of Medicine on "Some Aspects of Medical Education."——Dr. William Mithoefer, Cincinnati, addressed the Claremont County Medical Society, Loveland, June 16, on "Sinus Infection."——Dr. Arthur Schuller, Vienna, Austria, gave a postgraduate course of lectures before the Academy of Medicine of Toledo and Lucas County, recently, on "Roentgen-Ray Diagnosis of the Skull"; Dr. Frank N. Wilson, University of Michigan Medical School, Ann Arbor, gave the second course of lectures on "The Heart." The academy plans two additional postgraduate courses for the fall month.——The Trumbull County Medical Society held a joint meeting with the Trumbull County Bar Association at the Warren Country Club; there was a golf tournament and a dinner. Dr. Charles W. Stone, Cleveland, and Hon. John Cline discussed proposed legislation concerning expert testimony.——Dr. Dennis E. Jackson, University of Cincinnati College of Medicine, addressed the Columbus Academy of Medicine, recently, on "Glimpse of Medical Practice in Former Times."——At a meeting of the Allen County Academy of Medicine, Lima, July 20, a set of golf sticks was presented to Dr. Wilhelm H. Vorbau, formerly assistant physician at the Lima State Hospital, who addressed the academy on "Some Nervous Diseases and the General Practitioner."

OREGON

Society News.—The Medical Arts Building in Portland was opened, June 17, with appropriate ceremonies.—— Dr. William J. Mayo, Rochester, Minn., addressed the Portland County and City Medical Society, July 7, on "Diseases of the Spleen."

Personal.—Dr. Merle W. Moore, Portland, has been appointed physician in charge of the sesquicentennial hospital, Philadelphia.——Dr. Samuel C. Slocum, Portland, recently won for the third time the golf championship of the Waverly Country Club.

Hospital for Indians.—The Department of the Interior has let the contract for the construction of a fifty bed hospital for the Indians on the Klamath Reservation at Klamath. It will be finished in about three months. There are 1,241 Indians on this reservation.

RHODE ISLAND

Society News.—Dr. Edward L. Myers has been elected president of the Woonsocket District Medical Society for the ensuing year, and Dr. William A. King, secretary.——The trustees of the Caleb Fiske Fund awarded the prize this year to Dr. Elliott S. A. Robinson, Boston, for an essay on "Recent Progress in Prevention and Treatment of Scarlatina, Measles and Diphtheria"; a $250 prize will be awarded to the winning essay in 1927 on the subject of "Calcium Metabolism as Related to Therapy." The secretary of the fund is Dr. Eric P. Stone.

SOUTH CAROLINA

Hospital News.—The contract has been let for the new $250,000 Burgiss Shrine Hospital for Crippled Children, Greenville, which will have a capacity of fifty beds.——The Hays' Hospital at Clinton was recently destroyed by fire.

Mortality Rate Decreased.—According to the Department of Commerce, the death rate of South Carolina for 1925 was 1,219 per hundred thousand of population, as compared with 1,300 in 1924. The decrease is largely accounted for by smaller death rates for measles (from 31 to less than 1 per hundred thousand); all forms of pneumonia (from 102 to 77 per hundred thousand); whooping cough (from 27 to 11); malaria (from 15 to 10), and diarrhea under 2 years of age (from 55 to 42).

SOUTH DAKOTA

State Board of Health.—At the May meeting of the state board of health, Dr. Robert D. Alway, Aberdeen, was elected president; Dr. Hampton R. Kenaston, Bonesteel, vice president, and Dr. John F. D. Cook, Waubay, secretary. The board appointed the following physicians members of county boards of health to fill vacancies:

Drs. Roy F. Sackett, Parker, and Edward Joyce, Hurley, Turner County Board of Health.
Frederick Treon, Chamberlain, Brule County Board of Health.
Harry C. Durkee, Faith, Meade County Board of Health.
Harold W. Riggs, Armour, Douglas County Board of Health.
John S. Tschetter, Huron, Beadle County Board of Health.
Frank M. Loring, Artesian, and Paul P. Halleck, Letcher, Sanborn County Board of Health.

TENNESSEE

Personal.—Dr. Edward A. Lane, director, division of epidemiology, state department of health, resigned, effective, July 16, to accept a similar position in Boston with the Massachusetts State Health Department; he will be succeeded by Dr. H. C. Stewart.

Society News.—The Tri-County Medical Society, comprising Carroll, Henry and Weakley counties, held its annual picnic, July 13 at McKenzie; Dr. William D. Haggard, Nashville, spoke on "Radium Treatment of Tumors of the Uterus"; Dr. George R. Livermore, Memphis, on "Bladder Neck Obstruction," and Dr. Virgil E. Massey, Huntingdon, on "Acute Appendicitis."

Health at Nashville.—Telegraphic returns to the department of commerce from sixty-four cities with a total population of about 29,000,000 for the week ending July 10 indicate that the highest mortality rate (27.8) was for Nashville, and that the rate for the group as a whole was 11.7. The death rate for Nashville for the corresponding period last year was 19.5, and for the group of cities, 11.8.——The report of the department of commerce for the week ending July 17 also showed that the highest mortality rate (24.7) among a group of sixty-five cities was that for Nashville, and the mortality rate for the group of cities as a whole was 10.8.

TEXAS

Veteran Practitioners Honored.—The Hill County Medical Society held a banquet on the lawn of the Boyd Sanatorium, Hillsboro, July 9, in honor of physicians of the county who have been in practice thirty-five years or more. The honor guests included Drs. Thomas R. Dean, Whitney; R. M. Greer, Whitney; Aaron B. McPherson, Lovelace; James S. McKown, Osceola; John Buie, James W. Miller, Andrew J. Menefee, James J. Roberts, Benjamin F. Smith, James W. Spalding, all of Hillsboro; J. B. McAllister, Aquilla; J. H. Young, Itasca, J. P. Weir, Covington, and William A. Wood, Waco, who practiced at Hubbard for years. Dr. Foster D. Sims, Abbott, president of the society, was toastmaster.

VIRGINIA

Nurse Appointed County Health Officer.—Miss M. Anne Owen has been appointed health officer of Northampton County, it is reported; for more than a year Miss Owen has been county nurse. Northampton county also has a woman on its board of health, who was appointed to that position to succeed the late Dr. Carlisle L. Nottingham.

Personal.—Dr. Robert Bruce James, Danville, has been appointed post physician and lecturer on biology at the Virginia Military Institute, Lexington, Va., and will take up his new duties in September.——Dr. Joseph A. McGuire, Norton, has been appointed by the governor a member of the state board of health, effective, July 1.——Dr. James Edwin Wood, Jr., associate professor of internal medicine, University of Virginia Medical School, has been granted a year's leave of absence to do research work abroad.

WASHINGTON

Personal.—The late Dr. Charles H. Burbank, Seattle, bequeathed funds to establish in the general hospital of that city a three bed ward for diabetic boys, where they may obtain hospital care for a year if necessary.——Dr. Leon G. Woodford, Everett, has been elected president of the staff of Providence Hospital.

Restoration of License Rescinded.—The state bureau of licenses rescinded the action taken recently by the commissioner of licenses in the case of Dr. Annie K. Russell, Seattle. The commissioner is said to have restored Dr. Russell's license without consulting the medical authorities of the state. Dr. Russell's license was revoked in 1915.

Health Officer Appointed.—Dr. Herman S. Judd has been appointed city health officer of Tacoma, it is reported, to succeed Dr. Charles F. Engels, resigned. Dr. Judd is a graduate of Rush Medical College, Chicago, and a practitioner of many years' experience; he served during the World War, and later at the Western State Hospital at Steilacoom and in the Veterans' Bureau.

WISCONSIN

Medical Care for Students.—The University of Wisconsin conducts a student health service, it is reported, on the staff of which are nine full-time physicians, two nurses, two technicians and six clerks, who also conduct the students' infirmary, a modern hospital separate from the Wisconsin General Hospital. There were 1,819 admissions to the students' infirmary last year among about 8,000 students enrolled in the university; about 61 per cent of the men and 83 per cent of the women made some call for health service at the clinic or infirmary. The student pays $3.50 each semester for medical service; he may call one of the nine physicians at any time, and may remain in the infirmary during the entire semester, receive his board and room, and certain laboratory service; in addition, affiliation with the university medical school makes possible consultation with other physicians on the faculty without extra charge to the student.

State Medical Meeting.—The eighty-fifth annual meeting of the Wisconsin State Medical Association will be at Madison, September 15-17. Six general subjects will be given a half day each on the program: general therapeutics, internal medicine, allergy of the skin and vaccines, orthopedic surgery, obstetrics and pediatrics, and general surgery. Among the speakers will be Dr. Bernard Fantus, Chicago; Dr. Curran Pope, Louisville, Ky.; Dr. Joseph A. Capps, Chicago, who will present a demonstration of a periodic examination of an apparently healthy person; Dr. Joseph L. Miller, Chicago; Dr. John L. Porter, Evanston, Ill.; Dr. John O. Polak, Brooklyn; Dr. Joseph Brennemann, Chicago; Dr. Henry F. Helmholz, Rochester, Minn., and Dr. Ernest Sachs, St. Louis. President Glenn Frank of the University of Wisconsin will address the annual dinner meeting at the Hotel Loraine, Thursday evening. The Dane County Medical Society has arranged a garden party for members and their wives, to be held near Madison, Wednesday afternoon, and, in the evening, a smoker for the members. There will be a symposium Thursday morning led by Dr. Otto H. Foerster, Milwaukee, and Dr. Harry S. Bernton, Washington, D. C. Dr. Edward J. Goodwin, secretary, Missouri State Medical Society, will be the guest at the meeting of the constituent medical societies, Thursday. The council and other officers of the state society will be guests of the secretary at a dinner Tuesday afternoon at the Madison Club. The golf tournament will be played Tuesday; various other entertainments and scientific features are being arranged.

LATIN AMERICA

French Scientists to Lecture.—Mme. Curie and fourteen other French scientists sailed for São Paulo and Rio de Janeiro, June 26, according to *Science*, in response to an invitation to the French government through the Brazilian embassy to give a series of lectures to students of Brazil on French science and art.

National Maternity Council.—The board of the Central Compulsory Insurance Fund of Chile has decided to create a national maternity council, which will organize throughout the nation services to give efficient care to the working mothers during pregnancy and childbirth, in accordance with the requirements of the insurance fund law. These services will include prenatal and child health clinics, maternity hospitals, home care and antisyphilis clinics. Dr. Carlos Mönckeberg, professor of obstetrics, University of Chile, has been appointed president of the maternity council.

New Health Building.—An imposing building will be erected in Montevideo, Uruguay, to house the Institute for the Prophylaxis of Syphilis and the National Hygiene Council. The plans took the prize in a competition among architects; on the jury of award, among others, were Drs. Alejandro Gallinal, Hector del Campo and Alfredo Vidal y Fuentes. The institute will have in this building, dispensaries, laboratories, clinics, an auditorium, library and offices. The National Hygiene Council will have offices and quarters for such departments as sanitation, chemical and biologic laboratories, statistical bureau and pharmacy inspection.

GENERAL

American Association of Psychiatric Social Workers.—This new organization was formed at Cleveland in May, and the section on psychiatric social work of the American Association of Hospital Social Workers was formally disbanded after due consideration. It was considered that the best interests of the group lay in a broader field than one that is necessarily centered largely in hospitals and is, therefore, primarily medical. Mrs. Maida H. Solomon, Boston, was elected president of the new organization, and Miss Kathleen Ormsby, National Committee for Mental Hygiene, secretary-treasurer. The annual meeting will be held at Des Moines at the time of the National Conference of Social Workers.

American Electrotherapeutic Association.—The thirty-sixth annual meeting of this association will be at Atlantic City, September 8-11, with headquarters at the Hotel Ambassador, and under the presidency of Dr. Victor C. Pedersen, New York. Legally licensed physicians will be welcome at this meeting and at the clinical session in Philadelphia, Tuesday, preceding the meeting, where there will be a demonstration of physical therapeutic methods at the Polyclinic Hospital and a clinical conference, and a clinic on surgical electrothermic methods at the William L. Clark Hospital. Among the invited guests are Dr. Frank Nagelschmidt, Berlin, Germany; Dr. Joseph Rivière, Paris, France; Dr. Joseph N. Chausse and Dr. Sylvio LaFortune, both of Montreal, Canada, and Dr. Foveau de Courmelles, Paris, France. Addresses will be made by leading physicians in the specialty in this country; an address on "Periodic Health Examinations and Management of Findings" will be given by Dr. William B. Snow, New York, in whose honor there will be a testimonial dinner, Friday evening.

Chiropractic Division in Veterans' Bureau Proposed.—Mr. Frazier has introduced in the Senate a bill (S. 4124) proposing to establish in the U. S. Veterans' Bureau a per-

manent division of "drugless health sciences," including chiropractic, osteopathy and physical culture, and providing that the chief of the drugless division shall be a practicing chiropractor who shall also be the executive head of the drugless division. The bill was referred to the committee on finance, before which it is now pending. Gen. Frank T. Hines, director of the Veterans' Bureau, has written to the chairman of the committee, Senator Smoot, opposing the bill, stating, among other things, that it does not appear necessary to provide for such a division in view of the excellent equipment already provided in hospitals and regional offices for the care and treatment of veterans, and pointing out that the introduction of "another school of medical practice would fatally complicate" the administrative problem, and would raise issues which would dangerously interfere with the imperatively urgent duty of giving ex-service men medical care and treatment.

Appointments and Promotions at the Rockefeller Institute.—Charles R. Stockard, Ph.D., has been appointed a member of the board of scientific directors of the Rockefeller Institute for Medical Research, New York; other changes announced include the appointment of Prof. Duncan A. MacInnes, Ph.D., associate member, and the following as assistants: Drs. Philip G. Cohen, Walter P. Covell, John A. V. Davies, Lewis A. Eldridge, Jr., Jacob Furth, Donald M. Hetler, Lawrence S. Kubie, Eaton M. MacKay, Julius Sendroy, Fred W. Stewart and Alphonse Walti. Rudolf W. Glaser, ScD., and Dr. Philip D. McMaster have been promoted from associate to associate members. The following have been promoted from assistant to associate: Dr. Douglas R. Drury, James A. Hawkins, Ph.D., Moses Kunitz, M.S., Clara J. Lynch, Ph.D., Ida W. Pritchett, Sc.D., Lars A. Welo, Ph.D.——Albert B. Hastings, Ph.D., formerly an associate at the institute, has accepted an appointment as professor of physiologic chemistry at the University of Chicago, and David I. Hitchcock, Ph.D., formerly an associate in the division of general physiology, has accepted an appointment as associate professor of physiology and biochemistry at Bryn Mawr College.

Fellows Appointed to Positions.—The following fellows in medicine of the National Research Council have accepted the positions indicated, effective on the termination of their fellowships:

Barry J. Anson, A.M., working as fellow with Dr. Frederick T. Lewis, Harvard, appointed to position of instructor in anatomy, Northwestern University Medical School.

Dr. Sydney W. Britton, working as fellow with Dr. Walter B. Cannon, Harvard, appointed to position of associate in physiology, Johns Hopkins.

Dr. William V. Cone, working as fellow with Dr. James W. Jobling, Columbia, appointed to a position in the department of surgery, College of Physicians and Surgeons, Columbia University.

Benjamin Freeman, Ph.D., working as fellow with Alfred M. Richards, Sc.D., Pennsylvania, appointed to position of instructor in biochemistry, Western Reserve.

Thomas P. Hughes, A.M., working as fellow with Dr. Hans Zinsser, Harvard, appointed to position of assistant in bacteriology, Rockefeller Institute.

Moses L. Isaacs, working as fellow with Dr. Frederick P. Gay, Columbia, appointed to a position in the department of public health, College of Physicians and Surgeons, Columbia.

James A. Kennedy, Ph.D., working as fellow with Dr. Hans Zinsser, Harvard, appointed to position of instructor in bacteriology, University of Rochester.

Dr. Beatrice Carrier Seegal, working as fellow with Dr. S. Burt Wolbach, Harvard, appointed to a position of pathologist, Long Island Hospital, Boston.

Dr. Fred W. Stewart, working as fellow with Dr. Frank B. Mallory, Boston City Hospital, appointed to a position in the Rockefeller Institute for Medical Research.

Dr. Harry B. van Dyke, working as fellow with Dr. Cushny, Edinburgh, and Dr. Trendelenburg, Freiburg, appointed to position of associate professor in pharmacology, University of Chicago.

Report of International Health Board.—During 1925, the International Health Board of the Rockefeller Foundation gave assistance to public health enterprises of various types in ninety-seven states and countries. It participated in infection and sanitation surveys, operations for the control of yellow fever and hookworm disease, field studies and experiments in malaria control, county and rural health work, the development of special divisions of public health services, and the establishment and maintenance of schools and institutes of hygiene and public health. It also provided 197 fellowships for training in public health for men and women from twenty-seven countries, supported field stations for the training of prospective health officers in methods of malaria and hookworm control and in other public health work, and contributed funds to the Health Section of the League of Nations toward the support of international interchanges of public health personnel, the maintenance of an epidemiologic and public health intelligence service, and the training of government health officials in vital and public health statistics. The board assisted the following countries in hookworm control operations: Mexico, Nicaragua, Guatemala, Panama, Honduras, Porto Rico, Jamaica, Colombia, Paraguay, Ceylon, Madras Presidency, Siam, Java, Mauritius, Fiji and Tonga. Hookworm surveys were made in Montserrat, Haiti, Java, the Straits Settlements, the Seychelles, Cook Island, Tonga, the New Hebrides, and the mines of Spain. A total of 147 fellowships was awarded by the board in 1925. Of these, fifty-eight were allotted in the Americas, including twenty-nine in the United States, seventy-one went to Europeans, and eighteen to the East. In addition to these fellowships, fifty-one resident fellowships were awarded for study within the student's own country. Eleven of these fellowships were allotted to Hungary, four to Italy, and thirty-six to Jugoslavia.

FOREIGN

British Association to Investigate Psychanalysis.—According to the New York *Tribune*, the British Medical Association at the recent meeting at Nottingham voted to appoint a committee to conduct an investigation of psychanalysis. Those who opposed the resolution protested, it is said, that psychanalysis was not yet sufficiently established as a science to justify an investigation by the association.

Marañon Imprisoned.—The *Revista Médica de Málaga* of July 1, our latest Spanish exchange, brings word that Dr. Gregorio Marañon of Madrid has been arrested by government order and imprisoned. Our exchange does not mention or comment on the reasons for this procedure, but deplores the loss to science of even a few days of his clinical and laboratory work. Press reports indicate that the reason given was of a political nature. Marañon's name is familiar to the readers of THE JOURNAL; his contributions to internal medicine are frequently summarized in our Current Literature department.

Personal.—Sir George Newman, chief medical officer, ministry of health, gave an address at the two hundredth celebration of the founding of the Faculty of Medicine at Edinburgh University, Scotland, June 11.——Dr. P. Watson-Williams has resigned as editor of the *Bristol Medico-Chirurgical Journal* after twenty-five years of service on the editorial committee.——The Victor Horsley Memorial Lecture of the British Medical Association was delivered, July 9, at the association's headquarters, by Mr. Wilfred Trotter, surgeon to the University College Hospital, on "The Insulation of the Nervous System."——Dr. Georg Winter, professor of gynecology at the University of Königsberg, has retired on reaching the age of 70; he has long been in the vanguard in combating uterine cancer.——Prof. R. Maresch has been appointed dean of the medical department of the University of Vienna.——Prof. E. Fröschels, Vienna, is to preside at the second congress of the International Society for Study of Speech and the Voice, which is to be held at Vienna this month. Dr. Schilder will open the discussion on speech disturbances of central origin.——Dr. W. W. C. Topley has been appointed to the chair of bacteriology and immunology at the University of London, and Dr. M. Greenwood to the chair of epidemiology and vital statistics.——Prof. G. Viale of the chair of physiology at the University of Sassari, Italy, has been appointed to a similar chair at the University of Buenos Aires.——Dr. and Senator G. Fano, professor of physiology at the University of Rome, has been elected president of the newly organized Italian Società di biologia sperimentale.——Dr. Uhlenhuth, Freiburg, was appointed to represent Germany at the semicentennial of the Royal Sanitary Institute and Congress, at London in July.——Dr. Carl Hamel succeeds Dr. Bumm as president of the German public health service.——Dr. E. Fischer, professor of anatomy at the University of Freiburg, has been appointed director of the institute for anthropologic research now being organized at Dahlem.——Dr. G. Lennhoff reports that the German Antiquackery Society has now 26,000 members, and its official organ, the *Gesundheitslehrer*, 19,000 subscribers, but that the cooperation of physicians leaves much to be desired.——Dr. O. Capitan has been appointed to represent the French Académie de médecine at the twenty-second International Americanist Congress at Rome in September.——Dr. L. Raynaud, chief of the public health service in Algeria, member of the health board of the League of Nations, was given the task of organizing a pan-African epidemiologic bureau of information as decided at the recent international sanitary conference at Paris; he is to make a preliminary survey of conditions in Algeria as a basis for the work.

Government Services

Strength of Army Medical Reserve

The annual report of the Surgeon General's Office will show the following strength of the various corps of the medical department reserve:

Medical corps	10,327
Medical administrative corps	1,496
Sanitary corps	497

A very considerable part of the accomplishment is the result of the interest manifested by physicians to attain the proper medical service for the armies under a general mobilization plan. The number of physicians now enrolled in the reserve and available for assignment to units and training is less than 50 per cent of the number that will be required under the general mobilization plan. The Surgeon General desires that the medical profession of the United States be kept fully informed as to the status of the medical preparedness program. It is hoped that the military obligations of the medical profession to develop a satisfactory reserve corps will result at an early date in the complete success of the plans of the war department to enrol a sufficient number to complete the organization of units which will be necessary for military service under the general mobilization plan.

Changes in Medical Personnel

The U. S. Veterans' Bureau Medical Bulletin, July, notes the following resignations:

Dr. Joseph G. Anderson, Hospital no. 63, Lake City, Fla., April 3, 1926.
Dr. Willard P. Greene, Hospital no. 60, Oteen, N. C., April 9, 1926.
Dr. John S. Harlow, Jr., Hospital no. 44, West Roxbury, Mass., April 30, 1926.
Dr. William R. Leverton, Hospital no. 59, Tacoma, Wash., April 21, 1926.
Dr. Marcellus McCreary, Hospital no. 55, Fort Bayard, N. M., May 10, 1926.
Dr. Duncan D Monroe, Hospital no. 79, Outwood, Ky., May 5, 1926.
Dr. Lawrence W. Pence, Hospital no. 69, Fort Thomas, Ky., April 2, 1926.
Dr. Andrew F. O'Connor, Hospital no. 101, St. Cloud, Minn., April 27, 1926.
Dr. Orville R. S. Sheffield, Hospital no. 91, Tuskegee, Ala., March 24, 1926.

Dr. John H. Thompson was recently appointed to the Veterans' Bureau.

New Army Medical Officers

The Surgeon General's Office announces the appointment in the medical corps of the regular army of the following physicians, who have finished their fifth year of training or internship. Their appointments were confirmed by Congress, July 2.

From Letterman General Hospital:
Emery E. Alling, Oklahoma University Medical School.
George E. Armstrong, Indiana University.
Charles H. Beasley, Washington University.
Hobart D. Belknap, University of Oregon Medical School.
Clifford A. Best, Iowa State University.
William O. French, Jr., Stanford University.
Alvin L. Gorby, Oklahoma University Medical School.
LaFayette Monson, University of Pennsylvania.
Verner E. Ruedy, University of Oregon Medical School.

From William Beaumont General Hospital:
Mack M. Green, Vanderbilt University Medical School.
Martin E. Griffin, Iowa State University.
Reuel E. Hewitt, Iowa State University.
Harold E. Rhame, George Washington University.

The following officers of the reserve corps who have been on active duty at military hospitals have also been commissioned in the regular army medical corps:

Fitzsimons General Hospital:
Cecil W. Dingman, University of Nebraska.
William Kraus, Johns Hopkins.
Robert S. Lilla, Jefferson Medical College.
Bennie A. Moxness, Georgetown University.
William E. Shambora, Georgetown University.

Fort Sam Houston:
Eugene W. Billick University of Pittsburgh.
Charles A. McDowell, University of Pittsburgh.
Bennet J. McGuire, University of Pittsburgh.
Loren D. Moore, Washington University.
Merrit G. Ringer, Northwestern University.
Earle G. G. Standlee, Baylor University.
Arthur B. Welsh, University of Pittsburgh.

Dr. Dwight M. Young, a graduate of Tulane University in 1925, was also commissioned as a first lieutenant in the regular army at the same time.

Appointments in Public Health Service

The Surgeon General, U. S. Public Health Service, announces the appointment of the following physicians in the grade of assistant surgeon, effective the date of oath:

Gerald T. Sprague
Kirby K. Bryant
William H. Sebrell, Jr.
George G. Holdt
Edward R. Pelikan
Homer L. Skinner
Clifford L. Wilmoth
Charles L. Quaintance
Anthony P. Rubino
John W. Scott

Notice of Examination for Public Health Service

Examinations will be held, August 9, for entrance into the regular corps of the U. S. Public Health Service at San Francisco, New Orleans, Chicago and Washington, D. C. Requests for permission to take the examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C. Candidates must be not less than 23 nor more than 32 years of age, and they must have graduated in medicine at some reputable medical college, and have had one year's internship or two years' professional practice. They must pass oral, written and clinical tests before a board of medical officers, and undergo a physical examination.

Reserve Officers Serving Internships

The following physicians appointed recently in the medical reserve corps of the army have been assigned to active duty in a military hospital, effective, August 1, to pursue an internship with a view to qualifying for a commission in the regular army medical corps:

Walter Reed General Hospital, Washington, D. C.

Name	Medical School	Home Address
John P. Bachman	University of Buffalo	Buffalo
Richard A. Bowen, II	Medical Coll. of Virginia	Richmond, Va.
William F. Burdick	Univ. of Pennsylvania	Union Dale, Pa.
Roger B. Burrus	Vanderbilt University	Hickman, Ky.
Carlton Goodiel	George Washington Univ.	Harrisburg, Pa.
Patrick B. Hughes	Univ. of Pennsylvania	Carbondale, Pa.
Horace P. Marvin	University of Vermont	Essex Junction, Vt.
Marion W. Ransone	Medical Coll. of Virginia	Hampton, Va.
Hiram F. Sharpley, Jr.	Univ. of Pennsylvania	Tybee, Ga.

Letterman General Hospital, Presidio of San Francisco

Fletcher E. Ammons	Medical Coll. of Virginia	Hampton, Va.
Thomas W. Christman	University of Oregon	Portland, Ore.
Jay C. Davis	University of Minnesota	Minneapolis
Lester M. Dyke	University of Iowa	Iowa City
Harold W. Glattly	University of Iowa	Iowa City
Arthur J. Redland	Jefferson Medical College	Ardsley, Pa.
James B. Smith, Jr.	Medical Coll. of Virginia	Sharps, Va.
Kenneth G. Smith	University of Oregon	Portland, Ore.
John H. White	University of Oregon	Portland, Ore.

William Beaumont General Hospital, El Paso, Texas

Modestus W. S. Buechele	Jefferson Med. College	Altoona, Pa.
William R. Craig	Vanderbilt University	Harrogate, Tenn.
Ernest G. Kelly	Vanderbilt University	Plantersville, Miss.
Hardy A. Kemp	St. Louis University	Cassville, Mo.
William L. Wilson	Baylor University	Dallas, Texas

Fitzsimons General Hospital, Denver

Frank E. Council	Vanderbilt University	Windon, Texas
Wilbur H. Miller	Jefferson Med. College	Mifflinville, Pa.
William H. Seale	Baylor University	Floydada, Texas
Harold L. Stewart	Jefferson Med. College	Houtzdale, Pa.

Station Hospital, Fort Sam Houston, Texas

John B. Chester	Vanderbilt University	Nashville, Tenn.
John J. Curley	Albany Medical College	Troy, N. Y.
James P. Gill, Jr.	Vanderbilt University	Dallas, Texas
James D. Harper	St. Louis University	St. Louis
Henry B. Lauer	St. Louis University	Dubuque, Iowa
George B. Moore, Jr.	Vanderbilt University	San Antonio, Texas
Ralph M. Sloan	Vanderbilt University	Black Rock, Ark.
William B. Wilson	St. Louis University	Cape Girardeau, Mo.

Reserve Public Health Officers Assigned to Duty for Training

The U. S. Public Health Service has issued orders assigning among others, the following physicians, assistant surgeons in the reserve, to active duty for training at the following hospitals:

George D. Boone, Jr., U. S. M. H. no. 21, Stapleton, N. Y.
Fred W. Caudill, U. S. M. H. no. 14, New Orleans.
Leon O. Spencer, U. S. M. H. no 14, New Orleans.
Carles B. Stacy, U. S. M. H. no. 14, New Orleans.
James P. Bailey, U. S. M. H. no. 19, San Francisco.
Leo J. Hand, U. S. M. H. no 5, Chicago.
Ralph Horton, U. S. M. H. no. 14, New Orleans.
Clarence D. Kosar, U. S. M. H. no 21, Stapleton, N. Y.
Leon O. Parker, U. S. M. H. no 21, Stapleton, N. Y.
Cecil C. Swann, U. S. M. H. no 14, New Orleans.
Joseph F. Van Ackeran, U. S. M. H. no 14, New Orleans.
George R. Welch, U. S. M. H. no. 14, New Orleans.
Burbridge S. Yancey, U. S. M. H. no. 1, Baltimore.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 10, 1926.

The Macewen Memorial

On commemoration day at Glasgow University, tributes were paid to the memory of Sir William Macewen, who occupied the regius chair of surgery for thirty-two years. It was intended that Harvey Cushing should deliver an oration on the life and work of Macewen, but he was unable to visit our shores this year. In his absence Archibald Young, successor to Sir William Macewen in the regius chair, gave an oration. Professor Young began with the statement that Macewen's life and Macewen's work were synonymous; his life was his work, and his work was his life. He seemed to have been actuated by the determination, perhaps hardly formulated in his mind, to devote his great powers unceasingly to orderly advance. This was abundantly illustrated by the remarkable list of his works, comprising more than seventy contributions to the literature of surgery, the greater part being papers and monographs of importance and representing a mass of scientific research and investigation that might have occupied the energy of several earnest workers. Some of his larger works by their inherent merit, scientific insight, and irrefutable demonstration, such as those on pyogenic diseases of the brain and spinal cord, and his works on osteotomy and on the growth of bone became classic. His "Atlas of Head Sections" was a contribution to surgical anatomy of the skull and brain which stood out as a permanent addition to science. This was published in the same year as his great work on pyogenic diseases of the brain and cord, only five years after the memorable address on the surgery of the brain and spinal cord, delivered to the British Medical Association in Glasgow in 1888. During this period he also published a number of notable papers in other departments of surgery, so that this must have been almost the busiest period in his life.

In attempting to make an analysis of Macewen's character as it was presented in his life and his work, Professor Young made especial reference to several traits. Among the first was an infinite capacity for taking pains. No amount of trouble was too great if it meant the possible clearing up of a difficulty or the confirming of an observation. No detail of description, provided it was apposite, was ever wittingly omitted from a report or from an argument. Macewen was as meticulous in testing his tools as he was in verifying his facts. This was illustrated in his monograph on osteotomy and in his paper on chromic catgut, its method of preparation and its behavior in living tissues. A further trait was his faculty for taking full value out of every part of his work, in whatever line his energies were employed for the time. This was evident even in the earliest years of his medical life, when, in the course of his routine duties as police casualty surgeon in Glasgow, Macewen made observations on the minor problems that presented themselves, such as the diagnosis of alcoholic coma, and wounds in relation to the instruments that produce them. A third trait in Macewen's character the lecturer referred to without offense as his self-sufficiency. He was not and could not be a cooperator. He had confidence in his own powers, his own resources and his own judgment. He did not readily accept the judgment of others, and seemed almost to cultivate a spirit of distrust of anything he had not himself put to the proof. Tradition meant little to him; surgical dogma he accepted only where and when his own judgment was convinced by his own observation and deduction. In his teaching of students he encouraged this attitude of mind, and had much sympathy with what has been called "philosophic doubt." Neither team work nor the team spirit attracted him, but he had the faculty of getting the last ounce of work out of his assistant workers, because he gave the last ounce himself. Another quality of his work was thoroughness and completeness. He was never in a hurry to publish, and when he made his statement it was final. This note of finality was peculiar to much of his work; it represented, in as perfect a form as he could give to the world, what was his final position at that stage, one more well set rung in the ladder of advancing knowledge; but he would have been the last to claim in respect of any of his work that it was possible ever to reach finality.

Higher Pay for the Army Medical Service

An earnest attempt has been made to meet a grievance in connection with the army medical service. It has been urged not only by the officers themselves but also by medical bodies that their position was not comparable with the position and prospects of civilian physicians. A result was that few medical students looked to the army for a career, and in the service the seniors had been commuting their pensions and getting into civil practice before they became middle aged. The war office announces higher rates of pay and of retiring gratuities and improvement of the conditions of promotion and retirement of officers of the royal army medical corps, the army dental corps and the royal army veterinary corps. An officer of the royal army medical corps employed at the war office as assistant director general, assistant director or deputy assistant director general will receive additional pay at the rate of $1 a day instead of 50 cents as at present; and the rate of additional pay for officers appointed to act as specialists will be increased to $1 a day for all subjects. An officer commissioned after holding a resident appointment of not less than one year in a civil hospital may be granted an antedate not exceeding one year in respect of the period spent in such an appointment, provided that the interval between the termination of the hospital appointment and the date of entry into the service shall not ordinarily exceed six months. This antedate will count as commissioned service for the purpose of increments of pay, promotion, retirement, retired pay and retiring gratuities. An officer will be eligible to retire with a gratuity of $5,000 after seven years' service instead of after eight and a half years, and an officer who after three years' service as a major is eligible to retire with a gratuity of $9,000 or after six years' service as a major with a gratuity of $12,500 will be eligible to retire with $14,000 in lieu of $9,000, and $17,500 in lieu of $12,500. An officer serving as a medical officer in the royal army medical corps, Sept. 13, 1919, will be eligible on retirement as a major after twenty years' service for retired pay at a daily rate of $5 if more favorable to him than the rate assessed under the ordinary scale for medical officers; while an officer who has retired as a major since Sept. 13, 1919, after completing twenty years' service, will be entitled to benefit under this provision, with effect from the date of retirement.

Improvements have also been made in the conditions of service and emoluments of medical officers of the royal air force. The air council attaches great importance to attracting into the service the best type of physician, since on the capacity of the medical service depends to a peculiar degree the safety and efficiency of the air force. The duties of a physician in the air force include not only the prevention and treatment of those ordinary diseases to which the personnel of any fighting service is liable, but the special study of the mental and physical stresses imposed on the airman in diverse circumstances and climates—a branch of medicine with which the civil profession has heretofore had but little experience. The work to be done, therefore, has a high professional

interest, and with the improved conditions it is hoped that applicants of the best quality will be forthcoming. Entry into the medical branch is by means of a short service commission for three years on the active list, extensible to five years. Entry into the service, therefore, does not commit the entrant to a permanent career, but leaves him free to return to the civil profession and the service free to choose the best officers for retention. Permanent commissions are granted by selection to officers holding short service commissions, and in order that all short service officers who desire to remain in the service may have a reasonable opportunity of doing so it has been decided that, so far as practicable, every entrant shall have 50 per cent of a permanent commission. Further, in order to assist short service officers who pass to the reserve after five years to set up in private practice, the gratuity issuable on leaving the active list has been increased to $3,500, the gratuity after three years' service remaining at $1,750 as heretofore. The gratuities on retirement have been increased to $7,500 after ten years' service and $12,500 after fifteen years' service. After twenty years' qualifying service, officers are eligible for retired pay, the amount depending on age and length of service and, in the case of senior officers, on rank. The maximum rates of retired pay are, for air vice marshal, $5,050 instead of $4,770.50; air commodore, $4,750 instead of $4,490.50; group captain, $4,500 instead of $4,250.50; wing commander, $3,000 instead of $2,835; squadron leader, $2,500 instead of $2,360.50.

With a view to attracting into the service graduates who have had the valuable experience provided by a hospital appointment, it has been decided, subject to certain conditions, to allow physicians who have held a resident appointment in a recognized civil hospital for not less than one year—of which, however, half may have been spent in a nonresident appointment—to enter the air force with one year's antedate counting for purposes of seniority, promotion, retired pay and retiring gratuity. Every officer on entry will in future receive eight weeks' instruction in the medical problems connected with flying and in his other air force duties. With a view to enabling medical officers to take at least one general or specialist course at a civil or a service medical school, it has been decided to allow study leave up to nine months in all to officers during the first sixteen years of their service.

Control of Dangerous Drugs

The home secretary proposes to make regulations amending the dangerous drugs regulations. The principal effect of the new regulations is to carry out the recommendations contained in the report of the ministry of health committee on morphine and heroin addiction, published last February. Pharmacists are required to keep their stocks of dangerous drugs under lock and key. If the home secretary is of opinion that there is reason to think that a physician may be supplying, administering or prescribing any of the drugs either to or for himself or to or for other persons otherwise than as required for purposes of medical treatment, he may refer the case to a tribunal, and if the tribunal so recommends, the home secretary may withdraw the authorization of such physicians to be in possession of or to supply the drugs, and may cancel his right to dispense such drugs.

Failure to Prevent Disease

Preventable disease is not being prevented, and remediable disease and invalidity are not being adequately treated, is the complaint of Sir George Newman, chief medical officer of the ministry of health, in "An Outline of the Practice of Preventive Medicine," issued as a government publication. Among the criticisms made against the present system, he mentions a lack of correlation of medical knowledge gained and a lack of appreciation of the precise problems to be solved and the ways and means by which they may be faced. He declares that while it is true that the death rate is declining and decimating scourges and famines are a thing of the past, at least as regards the British Isles, we cannot escape from the conclusion that there remains a serious amount of preventable sickness and avoidable disablement, the tendency of which must be to undermine the physical stamina of the people and reduce their capacity. Moreover, the nation is slow to realize the vast mass of disability and incompetence that results from widespread maladies, usually regarded as trivial and negligible, which may not reach the physician, such as anemia, dyspepsia, constipation, septic wounds, accidents, colds, chilblains, eyestrain, and dental inefficiency.

Rockefeller Medical Fellowships Tenable in the United States

The medical research council, on behalf of the Rockefeller Foundation, has made the following awards of medical fellowships provided by the foundation, and tenable in the United States during the academic year 1926-1927: Geoffrey Bourne, M.D. (London), M.R.C.P., first assistant in the medical unit, St. Bartholomew's Hospital, London; Hugh William Bell Cairns, M.B. (Adelaide), F.R.C.S., assistant surgeon, London Hospital; Miss Rosalie Eveleyn Lucas, M.B. (Bristol), clinical assistant, Maudsley Hospital, London; Ronald Douglas Mackenzie, M.D. (Edinburgh), M.R.C.P.Ed., lecturer in pathology, University of Edinburgh; Carl Frederick Abel Pantin, M.A. (Cambridge), assistant physiologist, Marine Biological Laboratory, Plymouth; Arthur Frederick Bernard Shaw, M.D. (Trinity College, Dublin), F.R.C.P.I., lecturer in pathology, University of Durham; James Calvert Spence, M.D. (Durham), M.R.C.P., medical registrar and chemical pathologist, Royal Victoria Infirmary, Newcastle-on-Tyne, and Harry Ellis Carter Wilson, M.B. (Glasgow), assistant in chemical physiology, University of Glasgow.

The Museum of the Royal College of Surgeons

The post of pathologic curator to the museum left vacant by the death of S. G. Shattock has been filled by the appointment of Mr. C. F. Beadles, who had long been connected with the museum, assisted Professor Shattock in forming the great collection illustrating general pathology, and was mainly instrumental in the formation of the war collection. Excepting a certain number of dry specimens, the whole of the collection has been arranged and catalogued and may be considered to be complete. Mr. Beadles is now engaged on the series of special pathology, and the revision and rearrangement of this collection, commenced by Professor Shattock, has made considerable progress, embracing the specimens of the cutaneous, locomotor and nervous systems, and those of the heart and pericardium. Among the additions in the past year to the pathologic and teratologic collections, several are of unusual interest. The heart of a new-born child shows complete obliteration of the aortic orifice, the sole communication between the left ventricle and the aorta being through a greatly enlarged anterior descending coronary artery, which at its lower end expands into a cyst communicating with the apex of the ventricular cavity. An almost identical abnormality of the coronary artery is from an ox; but in it the orifice of the aorta is normal. A general dilatation of the esophagus of a dog above a tight stricture is due to compression in a ring formed on the one side by a right aortic arch and on the other by the normally placed pulmonary artery and ligamentum arteriosum. There is a tumor recoved from the pleura, which has received the name of lipofibrosarcoma or lipoplastic sarcoma, characterized by extensive tracts of fat cells of the embryonic type. An invagination of the wall of the ileum, due to a submucous

lipoma through the valve, resembles closely the best sausage shape of an intussusception. The series of human osteology has a cast of the Galilee skull. The original specimen was excavated from a cave near the Sea of Galilee; it is of the Neanderthal type (as mentioned in a previous letter) and is the first example of that type found outside the limits of Europe. Another important addition is a cast of the recently excavated "London" skull considered by Sir Arthur Keith to be the oldest trace of the human body yet discovered in the Thames valley. The president, Sir John Bland-Sutton, has given a specimen of the Mexican ligature ant (*Eciton hamatum*). The living animal is used by the natives as a kind of animated Michel's clip in the suturing of wounds. When applied to the wound, it grips the edges with its two powerful mandibles. The body is then cut away, leaving the head in situ; the prolonged contraction of the mandibular muscles effects a permanent closure of the wound.

Fans in Cotton Factories

The industrial fatigue research board, following an experiment made for the departmental committee on humidity in cotton weaving, has issued a report which states that the cooling power of the air and bodily comfort of the operatives were considerably increased by the particular arrangement of the fans adopted. Without fans, the cooling power of the air never reached the minimum standard considered necessary for workers engaged in sedentary occupations. The increased air movement produced by the fans had no significant effect on the number of warp breakages on the looms in their immediate vicinity. There were indications that the output on the looms affected by the fans was somewhat higher on the days when the fans were running. The highest output was obtained when the temperature was from 72.5 to 75 F., and the relative humidity from 75 to 80 per cent.

BUCHAREST

(From Our Regular Correspondent)

July 5, 1926.

Incontinence of Urine, and Adenoids

In a recent lecture before the Medical Society of Bucharest, Dr. Munteanu said that little mention is made of the part played by adenoids in causing nocturia in children. Despite the pioneer work of Major and Baumgarten, it was not until Freyberger published a report of his eighty-six cases and Fischer reported his investigations that the relation between adenoids and nocturia was recognized. The urine in such cases is passed in a stream, and only during sleep, or when the child is half awake. There seems to be a reflex irritation of the longitudinal muscle fibers of the bladder, the action of which is stronger because voluntary control of the sphincter is in abeyance during sleep. Etievant's theory is that the deficient oxidation of the blood in children, whether brought about by adenoids or by other nasal obstructions, produces anemia, headache, nightmare, and, by a reflex action, nocturnal incontinence. There is some clinical foundation for Etievant's idea. In some cases in which removal of the adenoids did not produce satisfactory results, the nasal respiratory tract was in part occluded by polyps. Rémoval of these was immediately followed by cessation of nocturia. The effect does not always follow quickly after the operation; in Etievant's cases fifteen days elapsed before the desired result was obtained.

Genital Tuberculosis

At a meeting of the Czernovitz Medical Society, Dr. Mayer stated that women in whom the genital organs are active in menstruation, conception and labor appear to have a special predisposition to genital tuberculosis. Gonorrhea, syphilis and puerperal septic processes favor the disease by setting up dystrophic conditions and hypoplasia. Genital tuberculosis is therefore generally secondary, but the incidence of the primary type is about 18 per cent. In 350 gynecologic cases were twenty-one in which the disease could be proved. The indefiniteness of the symptoms was striking. Some were led to seek advice by accidental causes. Some spoke of wasting, vague abdominal pains and irregular menstruation. Examination of the genital tract usually disclosed nothing. The extraordinary intensity of the caseating process was remarkable. This was strikingly so in the case of a robust looking girl who thought she was pregnant. Even through the abdominal wall thick, nodular masses could be felt. She was not pregnant. The whole omentum and peritoneum were strewn with nodules, the size of a plum, and only a few parts of the peritoneum were intact.

Malpractice Action Against a Factory Surgeon

At the county court of a large provincial town in Transylvania, a factory surgeon was accused of negligent and unskilful treatment. The plaintiff's ankle was badly bruised about a year ago. The foot was much swollen, and it was some time before the surgeon could diagnose the injury. The surgeon finally advised the patient to go to the state hospital in Cluj, where roentgen-ray examination revealed dislocation of the ankle and other injuries. Eventually the plaintiff was operated on at Bucharest, where the surgeon stated that any practitioner with ordinary care could have reduced the dislocation immediately after the accident, and that the swelling would not have been so great as to preclude the possibility of a definite diagnosis. This statement, if correctly reported, certainly does not agree with the average surgical experience, says the *Medic Practicant*, a medical journal appearing in Roumania. A clinical surgeon is the last man in the world, says the journal, we should have expected to make dogmatic assertions of this kind. Another expert stated that the defendant was not at all culpable, and the physician was acquitted.

RIO DE JANEIRO

(From Our Regular Correspondent)

June 15, 1926.

Retrogasserian Neurotomy in Trifacial Neuralgia

Dr. M. Santos recently reported to the Medical and Surgical Society the case of a patient who had been suffering for ten years with tic douloureux. A number of drugs, quinine, methylene blue, mercury, neo-arsphenamine, as well as alcohol injections and sections of the infra-orbital, mental and supra-orbital nerves, achieved only temporary relief. Santos first performed sympathectomy of the superior cervical ganglion, as the patient feared trephining and previous neurectomies had yielded no results. The effect of sympathectomy proved also transitory, and besides it caused exophthalmos, myosis, retraction of the palpebral opening and onesided facial congestion. A retrogasserian neurotomy, however, proved most successful. The only complication was a rebellious bleeding from an anastomosis of the ophthalmic vein, which caused several minutes' delay before it was controlled.

Sapucainha Oil in Leprosy

Dr. A. Machado discussed before the Medical and Surgical Society both from chemical and therapeutic standpoints sapucainha (*Carpotroches braziliense*) oil in the treatment of leprosy. This oil apparently has all the properties of chaulmoogra oil. It contains carpotrochic and carpotrochinic acids. The structural form of these acids suggests that sapucainha oil should be even stronger than chaulmoogra oil. Machado has extracted the esters of sapucainha oil and used them in the treatment of leprosy at the Minas hospitals.

BELGIUM

(From Our Regular Correspondent)

June 26, 1926.

Organization and Results of the Crusade Against Syphilis

M. Bayet has presented to the Academy of Medicine of Belgium a communication on the organization and results of the crusade against syphilis. Bayet holds the view that syphilis is retrogressing at a rate which justifies the belief that it will eventually disappear from the world. Prophylaxis by means of widespread treatment has been the point of departure. To decrease by three fourths or four fifths the duration of the contagious period of syphilis is the same thing, as far as dissemination is concerned, as if one decreased by three fourths or four fifths the number of contagious syphilitics. The prophylaxis of venereal diseases must consist, therefore, primarily in rendering the disease carriers noninfective. This must be accomplished through better and more treatment. Such prophylaxis requires the cooperation of the whole medical profession. It was necessary to a great extent to furnish drugs and medical care gratuitously.

The public health service has devoted large sums of money to the work. The Ligue nationale belge contre le péril vénérien carried on a publicity campaign (lectures, talks, motion pictures, etc.). The results, moreover, are to be seen on every hand. In the army, syphilis, which reached its height during the years 1918, 1919 and 1920, has decreased regularly since 1921, until now the number of new cases developing is almost nil. Recent syphilis, in other words, is decreasing from year to year and is tending to disappear entirely. Also among the civil population the proportion of recent cases of syphilis compared to the total number of syphilis cases has greatly diminished. The proportion in 1920 was 25 per cent and for 1923, 12 per cent. In Brussels the decrease has been even more marked—from 23 per cent to 9 per cent. In Antwerp, the percentage in 1920 was 34 per cent and in 1925, 16 per cent. In Liége the percentage has fallen from 34 per cent in 1919 to 12 per cent in 1924.

The Twenty-Fourth Flemish Congress of Medicine

As in preceding years, the Flemish Congress of Medicine was held as an independent section of the Flemish Congress of Natural and Medical Sciences.

Infant Mortality

The Oeuvre nationale de l'enfance has published statistics showing the infant mortality in each commune of Belgium for the years 1919 to 1923. The statistics show a constant lowering of the birth and the death rates of children under 1 year of age, the diminution being more marked in certain provinces and districts than in others. The figures heretofore published do not show the districts in which the infant mortality has been stationary or high and thus do not encourage endeavors to discover the causes for the existing state of affairs.

An Ocular Graft

Before the Société belge d'ophthalmologie, Drs. Weekers and Lambrecht presented observations on a workman who suffered accidental complete avulsion of one eye. The eye was immediately replaced in the socket. Nutrition of the eyeball was reestablished, and nothing in its external appearance betrays the fact that it is not a perfect eye. Visual functions, however, are entirely abolished.

Preventive Medicine

As a result of the public meeting organized by the Société belge d'eugénique on the subject of a medical examination preparatory to marriage, the Policlinique du Parc Léopold has agreed to establish a consultation center of preventive medicine, under the direction of Dr. Albert Govaerts.

Opening of the Urologic Clinic at the University of Brussels

In a previous letter the establishment of a clinical chair of urology at the University of Brussels was mentioned. Dr. de Smeth, the present incumbent, recently gave the introductory lecture, in which he praised the work of Dr. Leclerc Dandoy, who was one of the founders of the Ligue nationale contre le péril vénérien.

Death of Professor Henseval

Dr. Henseval, professor of hygiene and bacteriology at the University of Ghent, has died unexpectedly. He was a member of the Royal Academy of Medicine and also of the Conseil supérieur de l'hygiène. He was likewise director of the bacteriologic services in eastern Flanders.

GENEVA

(From Our Regular Correspondent)

July 7, 1926.

Infectious Aneurysm

From the Institute of Pathology of the University of Lausanne comes an interesting study of three cases of infectious aneurysm carried out by Dr. M. Secretan. The first case was of a woman, aged 18, who presented at necropsy a small aneurysm of the aorta undergoing healing. Necrosis was slight and fibroplastic reaction marked; polymorphonuclear leukocytes were few, there were many lymphocytes and plasma cells, and proliferation of the endothelium had taken place. There was a history of acute articular rheumatism. Secretan's second patient was a man, aged 32. Necropsy revealed ulcerative endocarditis of the aorta and mitral valve, a false aneurysm of the right inferior gluteal artery, and aneurysm of the aorta. The aortic valve presented endocarditis, and Secretan supposes that a vegetation of this valve infected by contact the corresponding aortic wall before becoming detached and embolizing the gluteal artery. The aneurysm must have developed intermittently, each increase in size corresponding to attacks of sudden violent pain observed clinically. The infectious origin of this aneurysm and the primary seat of the infection seem to be clearly established by the presence of streptococci both in the aortic valves and in the aneurysm. The third case was another example of infectious aneurysm of the heart. It originated in the aorta and predominated in the right sinus of Valsalva. There was also a perforating aneurysm of the interventricular septum, which leads Secretan to attribute great importance to diastolic reflux; the manifest aortic insufficiency at the time of the diastole threw the detached infected bits from the aortic valve against the interventricular septum on account of the reflux of the column of blood, and these, becoming grafted on it, resulted in the production of a parietal endocarditis.

Adenomyoma of Gallbladder

Dr. L. Nicod has studied four cases of adenomyoma of the gallbladder at the Institute of Pathology of the University of Lausanne. There was no mention made of any former symptoms of gallbladder disease. Three of the subjects were over 50 years of age, and one was 19. The seat of the neoplasm was the fundus in all four. The histologic elements of all four growths were glandular formations lined with cylindric epithelium secreting mucus. No trace of malignant proliferation could be detected. In two cases there was absolutely no trace of chronic inflammation either in the tumor or in other parts of the gallbladder. In the third case there was a diffuse lymphocytic infiltration confined distinctly to the growth. The fourth case presented a lymphocytic infiltration, but at the periphery of the growth and in other parts of the wall of the gallbladder there were signs of chronic

inflammation. Three subjects had other neoplasms, of either the epithelial or the connective tissue structure. One had a cancroid of the esophagus and a lipoma of the neck. In the third subject there was a gelatinous carcinoma of the colon, a hypernephroma of the left kidney, hemangioma of the liver, and a fibroma on the back of the left foot. The fourth case presented hypertrophy of the prostate. Nicod, by his histologic examinations, shows that inflammation of the gallbladder is unimportant in the causation of these tumors, and points out that these growths are extremely rare while the gallbladder is a common seat of inflammatory processes. Certain individuals, according to Professor Meyersburg of Lausanne, offer a predisposition to tumor growth anywhere in the body; and Nicod points out that in his cases, the tissues possessed the property of reacting to irritations by proliferation of the epithelium.

BUENOS AIRES

(From Our Regular Correspondent)

May 30, 1926.

A Surplus of Physicians

The Institute of Psychotechnics and Professional Orientation has published the results of an investigation into teaching questions. About 60 per cent of college graduates choose a medical career. In spite of the entrance examinations, which discard from 40 to 60 per cent of applicants, the number of medical students in Argentina has more than doubled in the last decade, rising from 3,695 in 1915 to 8,137 in 1924. The population has increased only from 8,000,000 to 9,600,000 during the same period. In spite of the difference in size, there are in this country half as many medical students as in the United States. The useless expenditure of money, loss of time, purposelessness and disappointment caused by a great number failing to finish the course should be avoided by better organization. Incidentally, the large number of students prevents their getting the necessary practical training. The consequences of excessive output become increasingly serious. At Buenos Aires there is a physician for every 750 inhabitants. As many are not able to secure an adequate practice, they seek either government posts or teachers' positions.

In order to obtain a medical degree, an applicant must devote at least seventeen years to study, and spend in his six year course in medicine proper about 14,800 pesos (about $6,040).

Vital Statistics

The Argentine birth rate has decreased 13.6 per cent, from 38.2 per thousand (1910-1913) to 33 per thousand (1920-1924). The death rate also decreased from 17.5 per thousand to 14.9 per thousand during the same period. The 1920-1924 marriage rate has risen again to the 1910-1913 figures, 7.2 per thousand. The growth of the population has decreased 12.2 per cent: from 20.7 per thousand (1910-1913) to 18.2 per thousand (1920-1924).

National Academy of Medicine

Dr. M. Torino has been appointed president of the National Academy of Medicine. A recent meeting was devoted to a tribute to Prof. A. Doleris, a corresponding member.

Health Department

The director of the national department of health, Prof. G. Araoz Alfaro, has left for Europe, to attend the international sanitary conference at Paris. Dr. Tiburcio Padilla, Jr., is filling his place during his absence.

Prize for Work on Electrocardiography

The 1924 first national prize for "sciences" has been granted to Dr. Tiburcio Padilla, for his book on electrocardiography. The value of the prize is 30,000 pesos (about $12,250).

BERLIN

(From Our Regular Correspondent)

June 19, 1926.

The Decrease in the Birth Rate in Germany and France

Before the Berliner Gesellschaft für öffentliche Gesundheitspflege, Professor Grotjahn delivered an address on the topic "What is France doing and what is Germany doing to prevent a decrease in the birth rate?" Although Germany has an excess of births over deaths, it is only because, during the war, so many persons were killed and because, later, so many died before the normal time. In a few years, the mortality figures will again increase, but the birth rate may go down still lower, just as it has been falling for many decades, quite independently of the wars. The fall in the birth rate is the result of birth control, which, arising among the French, has spread to Germany, Scandinavia, Switzerland, England, America and Australia, whereas, among the Slavic population, the birth rate is still high. If we retain as good an average age as existed before the war; namely, around 50 years, we then need twenty births per thousand of population to preserve the status quo. The birth rate in Berlin in 1925 was only 11.8. Napoleon I figured the need of six children to the family, two to replace the parents, one to constitute a reserve of population, while three would die. Modern statisticians consider that for the preservation (not the increase) of a population, every fruitful marriage should produce from three to 3.5 children.

Even before the war, France passed a law that, from the third child on, communal aid must be granted persons without means. More recent laws guarantee further aid. In Germany, however, nothing has been done, to speak of, to encourage large families. Yet even in France the last census gave a smaller population than it had before the war, in spite of the accession of Alsace-Lorraine and of the nearly three million foreigners living in France. This shows, too, that reduction in the birth rate does not exert a favorable effect on unemployment. It serves merely to attract foreign cheap man power. Germany's birth rate has already been reduced almost to that of France without signs of its being soon checked in its downward plunge. In 1900, Germany had a birth rate of 35 per thousand; in 1924, it had dropped to 20.4. France, in 1900, had a low birth rate of 21.3; and in 1924 it had not fallen much further (19.4). In Germany the decline in births is not confined to the cities. Only recently, a teacher in Uckermark (among others) announced, as the result of his investigation, that in his village there were only 2.2 children born per family.

What Constitutes a Race of Mankind?

In a lecture before the Berlin Anthropologic Society, Prof. Hans Friedenthal rejected the definition that a race is a circumscribed portion of the population with certain more or less uniform qualities. The mere marshaling together of a group of persons according to certain common peculiarities does not justify any conclusions as to what extent the peculiarities constituting the basis for such classification are really essential. For instance, a deeply tanned European may have the same hue of skin as a native of the tropics, but the European will have white children, while the native of the tropics will have brown children. A race, then, is a group of individuals with a well marked similarity in their genotype.

How, then, did the various races of mankind originate? Domestic animals are raised in such a manner that certain definite qualities will, in the course of generations, gain the ascendancy over other qualities. Human beings, however, have probably never been raised artificially, to any great extent.

As external factors in the origin of species, Friedenthal has proposed climate, migration, character of the vegetation, struggle for existence, and other causes. The conditions with respect to man are not unlike those under which races of wild animals develop in their native habitat. The pictures that he introduced in support of his views were impressive. He brought out that many wild animals present traits that are commonly supposed to be confined to domestic animals. On the other hand, some human beings present qualities that we do not expect to find other than in animals. For instance, some wild animals do not have as much hair covering as most races of mankind. Then there are spotted men—*Elster*, or magpie, negroes so called—and Papuans (New Guinea), who have markings on their bodies resembling the fly-like spots on certain of our white horses *(Fliegenschimmel)*. Europeans and chimpanzees, negroes and gorillas, mongolians and orang-utans are respectively similar to one another not only in the development of their skulls, as regards length, height and breadth, but also in the color of the skin. In addition, it seems more than likely that these three groups had in very ancient times respectively the same habitat. That, of course, does not signify that man is sprung from the ape but it is rather to be assumed that both had a common progenitor, which transmitted certain of his attributes or qualities to his anthropoid descendants and certain others to man.

A race relationship is established by comparison of various hereditary qualities. There is, however, some difficulty in deciding which qualities are essential and which are nonessential. The gibbon, of the several species of anthropoid apes, has the closest blood relationship to man, since its blood gives the most similar biologic reaction; and, strange as it may seem, the species of louse that infests the gibbon has the greatest similarity to human lice. However, from the standpoint of external body structure and endowments the gibbon does not resemble man so closely as does the chimpanzee. But the blood test of the chimpanzee does not indicate so close a degree of relationship as does the gibbon, while, as to lice, he is not infested. A comparison of fetuses often gives different results than researches on animals and human beings after birth.

Marriages

FORREST GRIMM SCHAEFFER, Allentown, Pa., to Miss M. Elizabeth Gitt of Hanover, June 3.

CLARENCE ARCHIBALD VEASEY to Miss Helen White Gray, both of Spokane, Wash., in June.

CHARLES RAYMOND DWYER to Miss Gladys E. Kendrick, both of Pottstown, Pa., recently.

D. J. MCCARTHY, Philadelphia, to Miss Elizabeth White of Atlantic City, N. J., June 21.

FRANKLIN A. WEIGAND to Miss Marie Louise Haussmann, both of Philadelphia, May 26.

THOMAS C. NASH, Philomath, Ga., to Miss Frances Dillard of Crawfordsville, June 24.

MARK B. HERLONG, Jacksonville, Fla., to Mrs. Blanche Curtis of Tampa, July 5.

LEON W. KELSO, Carlinville, Ill., to Miss Bonnie Woods of Jacksonville, June 4.

MANTON MARBLE CARRICK to Mrs. Mai Connor Gordon, both of Dallas, recently.

JAMES M. FLINN, Helena, Mont., to Miss Kathryn Meagher of Butte, May 18.

JULIUS E. ISAACSON to Miss Florence Bach, both of New Orleans, June 30.

CHARLES B. WARD to Mrs. Verna Kendall, both of Spokane, Wash., in June.

Deaths

Francis Romeyn Lyman ⊕ Hastings Upon Hudson, N. Y.; Medical Department of the University of the City of New York, 1893; past president of the Westchester County Medical Society; served during the World War; for many years president of the school board; health officer of Hastings Upon Hudson for more than thirty years; on the staff of the Dobbs Ferry (N. Y.) Hospital; aged 56; died suddenly, July 3, of heart disease.

Carle Edwin Bentley ⊕ Little Rock, Ark.; University of Arkansas Medical Department, Little Rock, 1895; Bellevue Hospital Medical College, New York, 1897; professor of clinical surgery at University of Arkansas Medical Department; Spanish-American War veteran; on the staffs of the Pulaski County Hospital and St. Vincent's Infirmary, where he died, June 30, aged 30, aged 53, of pneumonia.

Samuel Breck Ackley ⊕ Oconomowoc, Wis.; Rush Medical College, Chicago, 1892; secretary of the Waukesha County Medical Society; proprietor of the Oconomowoc Sanatorium, and formerly on the staff of the Waukesha (Wis.) Sanatorium; aged 59; died, June 22, at the Summit Hospital, of intestinal obstruction.

William S. Fast ⊕ Ingleside, Neb.; Ensworth Medical College, St. Joseph, 1893; member of the American Psychiatric Association; superintendent of the Hastings State Hospital, Ingleside, and formerly superintendent of the Nebraska Institution for the Feebleminded, Beatrice; aged 60; died, June 27, of pulmonary edema.

Edward W. Mooney ⊕ Detroit; Detroit College of Medicine and Surgery, 1899; at one time associate professor of medicine at his alma mater; member of the American College of Physicians; formerly on the staff of the St. Mary's Hospital; aged 53; died, June 20, of pernicious anemia.

James B. Roe, Newark, Ark.; University of Arkansas Medical Department, Little Rock, 1904; member of the Arkansas Medical Society; past president and secretary of the Independence County Medical Society; aged 51; died suddenly, June 17, of heart disease.

Harry Mower Lee, New London, Conn.; Medical Department of Columbia College, New York, 1898; member of the Connecticut State Medical Society; served during the World War; aged 51; died, June 24, at his home in Waterford, of heart disease.

Donavan Robeson, Greenville, Ohio; Medical College of Ohio, Cincinnati, 1870; Bellevue Hospital Medical College, New York, 1874; member of the Ohio State Medical Association; aged 85; died, July 12, at Ann Arbor, Mich., of pneumonia.

Robert M. Quig, East Waterford, Pa.; Jefferson Medical College of Philadelphia, 1875; member of the Medical Society of the State of Pennsylvania; aged 70; died, April 10, at the Harrisburg (Pa.) Hospital, of pyloric stenosis.

Frank Monroe Floyd ⊕ St. Louis; Marion-Sims College of Medicine, St. Louis, 1897; on the staffs of the Frisco, Lutheran and St. Louis Baptist hospitals; aged 60; died, July 10, of acute intestinal obstruction.

Joseph H. Lowrey, Neola, Iowa; Pulte Medical College, Cincinnati, 1883; member of the Iowa State Medical Society; aged 67; died, May 19, at Rochester, Minn., of peritonitis, following an operation for adhesions.

John Lewis Washburn ⊕ Youngstown, Ohio; University of Buffalo Department of Medicine, 1903; member of the Pittsburgh Ophthalmological Society; aged 51; died, June 21, of acute nephritis and rheumatic fever.

Emil T. Dippell ⊕ Huntington, Ind.; Jefferson Medical College of Philadelphia, 1897; member of the Central States Pediatric Society; aged 51; died, July 11, at St. Joseph's Hospital, Fort Wayne, of sinusitis.

Francis Patterson Morgan, Washington, D. C.; Columbia University College of Physicians and Surgeons, 1893; served during the World War; aged 59; died, July 4, of myloencephalitis, following influenza.

George Alvis Waters, Pawnee, Okla.; University of Arkansas Medical Department, Little Rock, 1890; member of the Oklahoma State Medical Association; aged 60; died recently, of cerebral hemorrhage.

Edgar R. Perkins, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1868; Civil War veteran; aged 89; died, June 22, at the National Soldiers' Home, of valvular heart disease.

Flora Alice Read, Fon du Lac, Wis.; Northwestern University Woman's Medical School, Chicago, 1895; aged 62; died, June 25, at the home of her brother in Elgin, Ill., of chronic nephritis.

Amos W. Bennett, Williamsport, Pa.; Louisville Medical College, 1892; member of the Medical Society of the State of Pennsylvania; aged 73; died, April 23, of septic sore throat.

James P. Prestley ✠ Newton, Ill.; Rush Medical College, Chicago, 1886; president and formerly secretary of the Jasper County Medical Society; aged 65; died, June 20, of uremia.

Thompson Flournoy Worthington, Glen Allan, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1902; died, April 21, of carcinoma of the stomach.

Clarence Mauritz Froid, Denver; Denver and Gross College of Medicine, 1905; served during the World War; aged 44; died, June 28, of sinusitis and cirrhosis of the liver.

Strodder U. King, Little Rock, Ark.; University of Louisville School of Medicine, 1886; member of the Arkansas Medical Society; aged 73; died, June 20, of dysentery.

Gordie C. Patton ✠ Camden, N. J.; Jefferson Medical College of Philadelphia, 1915; connected with the U. S. Veterans' Bureau; aged 39; died, June 29, of heart disease.

Abraham PerLee Pease, Massillon, Ohio; University of Wooster Medical Department, Cleveland, 1871; Civil War veteran; aged 79; died, June 26, of heart disease.

William Snearer, East Cleveland, Ohio; Cleveland Medical College, 1897; Cleveland College of Physicians and Surgeons, 1899; aged 67; died, June 23, of heart disease.

George Losekam, Takoma Park, Md.; Baltimore Medical College, 1897; aged 56; died, July 1, at the Georgetown University Hospital, of gangrene of the legs.

Samuel H. Pinkerton ✠ Salt Lake City, Utah; Bellevue Hospital Medical College, New York, 1883; aged 69; died in June, at Los Angeles, of pernicious anemia.

John Hall Gernon, Kankakee, Ill.; Rush Medical College, Chicago, 1872; member of the Illinois State Medical Society; aged 75; died, June 19, of heart disease.

Raymond Bedfort Lockridge, White Pine, Tenn. (licensed, Tennessee, 1919); served during the World War; aged 35; died, June 18, of cerebral hemorrhage.

Biddle R. Marsden ✠ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1885; aged 62; died suddenly, June 22, of heart disease.

George P. Cline, Byron, Ga.; University of the South Medical Department, Sewanee, Tenn., 1899; aged 52; died, June 30, of cerebral hemorrhage.

Theodore Harcum, Brown Valley, Minn.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 70; died, June 9, of cerebral hemorrhage.

Frank L. Horning ✠ Merchantville, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1889; aged 64; died, June 29.

Leonard O. Ulving ✠ Elgin, Iowa; Medico-Chirurgical University, Lund, 1913; Chicago Medical School, 1921; aged 36; died, June 4.

Albion Jason Marston ✠ Belle Vernon, Pa.; University of Pittsburgh School of Medicine, 1906; aged 47; died, June 21, of tumor of the brain.

Charles W. Umbarger, Gassaway, W. Va.; University of Louisville School of Medicine, 1911; aged 44; died, May 19, of heart disease.

James William Cave ✠ Wichita, Kan.; Kentucky School of Medicine, Louisville, 1892; aged 57; died, April 26, of heart disease.

Harry Eugene Kerch ✠ Dundee, Ill.; Chicago Homeopathic Medical College, 1892; aged 58; died, June 27, of cerebral hemorrhage.

Harvey Read Noble, Shiloh, Ohio; Jefferson Medical College of Philadelphia, 1888; aged 63; died, June 21, of heart disease.

John George Marchand, Hannibal, Mo.; St. Louis University School of Medicine, 1924; aged 28; was drowned, June 20.

Idus Carl Deariso, Atlanta, Ga.; Atlanta School of Medicine, 1913; aged 48; died, June 22, of cardiorenal disease.

William D. Morgan, Charleston, Ill.; Chicago Medical College, 1879; aged 70; died, April 15, of heart disease.

William Frank Cooper, Munford, Tenn. (licensed, Tennessee, 1889); aged 72; died, June 2, of cholelithiasis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MURARSENIDE NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

"Murarsenide" is the noninforming name applied by the Miller Biological Laboratories, Los Angeles, Cal., to a solution marketed in the form of ampules, claimed to contain in each 10 cc. (one ampule): sodium dimethylarsenate (sodium cacodylate), 0.7 Gm. (10.5 grains); mercuric oxycyanide, 0.004 Gm. (1/16 grain); and sodium iodide, 0.5 Gm. (7.5 grains). The preparation is proposed for the treatment of syphilis and is to be administered intravenously.

The advertising leads to the inference that "Murarsenide" presents an advance in the therapy of syphilis and that the arsenic compound contained in it is an advance over arsphenamine. The trade circular states "It [Murarsenide] carries a greater arsenic content in a more available form than do the arsenobenzol [Arsphenamine] products." Thus it is claimed:

"In the preliminary researches of clinical application of this new intravenous arsenical, we have succeeded in eliminating the toxic reactions, have increased and made more available the arsenic content, have eliminated the tedious and necessarily detailed technique of administration and have made possible the elimination of supplementary treatment by including in this material organic mercury in the form of oxycyanide in combination with sodium iodide."

"On account of its high available arsenic content, its combination with mercury and iodine and its nontoxic character, brilliant results are being manifest by its use."

These claims are unwarranted. Preparations containing sodium cacodylate, a salt of mercury and an alkali iodide proposed for the intravenous treatment of syphilis, have been marketed for many years;[1] sodium cacodylate has been shown to be inefficient in the treatment of syphilis;[2] and there is no rational basis for the simultaneous administration of arsenic, mercury and iodide in the treatment of syphilis. The trade circular stated:

"Murarsenide is also indicated in such conditions as trypanosomiasis, malaria, amoebiasis, localized bacteremias, bacilliary dysentery, flagellosis and as a general systemic tonic. Its parasiticidal merits are evident."

No evidence of any kind is offered in support of these claims.

Murarsenide is inadmissible to New and Nonofficial Remedies because it is an unscientific pharmaceutical mixture marketed with misleading statements of composition, under a noninforming name and with unwarranted therapeutic claims.

PHENOSEPTINE POWDER AND PHENOSEPTINE CONES NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

Phenoseptine Powder and Phenoseptine Cones are marketed by the Mertes Remedy Co., San Francisco, Cal. Phenoseptine Powder is stated to have the following composition: "Boracic Acid 75 per cent.; Zinc Phenolsulphonate 18 per cent; Phenol, Menthol, Thymol and Eucalyptol 7 per cent." The amounts of Phenol, Menthol, Thymol and Eucalyptol

1. Venarsen Not Admitted to N. N. R., Report of the Council on Pharmacy and Chemistry, THE JOURNAL, May 22, 1915, p. 1780; Herradora Specialties Not Accepted for N. N. R., Report of the Council on Pharmacy and Chemistry, ibid., April 28, 1923, p. 1259; Intravenous Specialties, ibid., Dec. 21, 1921, p. 1912.

2. Nichols, H. G.: Salvarsan and Sodium Cacodylate, THE JOURNAL, Feb. 18, 1911, p. 492; Cole, H. N.: A Study of Sodium Cacodylate in the Treatment of Syphilis, ibid., Dec. 30, 1916, p. 2012; The Pharmacology of Arsenicals, ibid., Feb. 28, 1921, p. 595.

contained in the total of 7 per cent is not declared. According to the label on the trade package of Phenoseptine Powder:

"This preparation is prepared especially for the medical profession in the treatment of leucorrhea, gonorrhoea, pruritis, vaginitis and all obstetrical and gynecological cleanliness."

The label contains directions for the use of this complex mixture.

"For vaginal, intra-uterine and urethral injections, Vaginitis, Pruritis (itching)."
"For Ulcers, sores, wounds."
"To Relieve Eczema and the Severer Skin Diseases."

Phenoseptine Cones in the advertising are stated to have the following composition: "(Parts) Acid Boracic, 50; Sod. Bor., 25; Alumen, 25; Acid Carbolic, 5; Glycerinum, 5; Thyme, 5; Eucalyptus, 5; Gaultheria, 5; and Mentha, 5." However, the Mertes Remedy Co. informed the Council that this formula no longer represents the composition of the "cones" and that "they are made from the formula of Phenoseptine, only adjusted to meet that form of administration."

BOYD'S
Phenoseptine Cones
Reg. in U. S. Patent Office
Vaginal Suppositories
Antiseptic — Deodorant — Astringent
For the Treatment of Leucorrhoea, Vaginitis and All Ulcerated Conditions of the Mucous Membrane and to Destroy All Germ Invasion or Germ Prosperity.
The Cones are very efficient in all forms of Piles.
One Dozen . . Net Contents

According to the label on the trade package, Phenoseptine Cones are "for the Treatment of Leucorrhea, Vaginitis and All Ulcerated Conditions of the Mucous Membrane"; are said to be "very efficient in all forms of Piles." They are also falsely claimed to be "a safe and reliable protection from Venereal Diseases."

Phenoseptine Powder and Phenoseptine Cones are unacceptable for New and Nonofficial Remedies because their composition is indefinite and needlessly complex; because they are marketed under names that are not descriptive of their composition and with therapeutic claims that are unwarranted; and because the recommendation on the trade packages invites their ill-advised use by the public in diseases which require correct diagnosis and medical treatment.

Correspondence

THE DANGER OF INCOMPLETE REMOVAL OF SMALL AND APPARENTLY INNOCENT LESIONS

To the Editor:—I wish to call attention to a life-saving and fundamental fact in the treatment of small tumors. Now that many persons are receiving correct information and are reporting for examination at once, or very quickly, after they feel the little tumor or mass, there is danger that this apparently innocent neoplasm may be incompletely removed by "shelling out," or enucleating or by removing by blunt dissection, or by cutting the tissue with the knife too closely to the capsule or border of the tumor.

A patient wanted a wen in the scalp removed. It was about 2 cm. in diameter and had been present many years. There had been no evidence of recent growth; there had been no pain or tenderness. It has always been my rule to remove all such tumors completely, so that if the microscopic examination showed malignancy, it would be unnecessary to remove any more tissue. In this case, when I made the gross section through the growth removed, I did not find a dermoid but a solid cancer, and the immediate frozen section, stained with polychrome methylene blue, pictured a fully developed spinal cell cancer arising in a dermoid.

This morning I looked at the stained section of a tumor removed from the region of the left knee joint. It showed the cellular picture of a chondrosarcoma. Clinically, and in the gross, it had impressed the operator as a benign tumor. The mass, about 2.2 cm. in diameter, had been felt by the intelligent patient over the inner head of the tibia—it was painless, did not interfere with joint function, but as it got a little larger, she sought an examination in June. The surgeon describes it as a movable mass, but not as movable as a joint body. At operation it was subcutaneous, but slightly adherent to the fascia. It impressed him as encapsulated. He removed it by blunt dissection combined with enucleation and shelling out. It had the gross appearance of a fibroma, with yellow and brown areas of the xanthoma. It was firm, like cartilage. In a few days, to the surprise of the operator, his pathologist reported sarcoma. There would have been no difficulty in this case at the first operation to have made a complete dissection so that, no matter what the microscopic report proved it to be, no further operation would be necessary. Now, in the case just quoted, to the discomfort of the patient and the chagrin of the surgeon, it will be necessary to excise the scar and a good margin of the tissue with the cautery.

Every physician should know that the object of removing skin lesions and the different types of lesions of the mouth and subepidermal and subcutaneous nodules is to protect the patient from the possible malignant degeneration in such benign localized neoplasms. But at the same time it should be borne in mind that malignant change in the cells present in these local growths may have taken place, so that, if it is not completely removed, there will be local recurrence with great danger of metastasis. Even if the tumor is still distinctly benign and the cells are as yet histologically benign and physiologically quiescent in their potential malignancy, incomplete removal will be followed by local recurrence of the benign tumor. Thus, the entire object of the operation will be lost and, in addition, the second tumor, the descendant of the first, will be potentially more malignant than its parent. We are getting correct information to the public. Most of the lesions of the lower lip, of the mucous membrane of the oral cavity and tongue, the warts, moles and keratoses and other local lesions of the skin, the subepidermal and subcutaneous nodules and tumors, are now well known to the public. They go to their family physicians with curiosity and usually with anxiety as to whether the lesions ought to be removed. In my own clinic, the percentage of these benign lesions has increased from less than 3 up to 1900 to more than 60 since 1920.

The rule should be this: Whenever any local lesion can be thoroughly and completely removed with a wide margin, that is, a margin wide enough for any type of malignancy which is possible in a local lesion in the specific area, this operation should be done with or without the cautery. There should never be an exception. There is no need of biopsy and, no matter what the section shows, no indication for further local operation. If the local lesion is of sufficient extent to make the complete operation mutilating, then its character must be ascertained at once by frozen section and the indicated operation must follow at once. Better no operation at all than an incomplete operation. Now that patients are reporting in such large numbers with lesions of this character in which the chances of a permanent cure are generally 100 per cent, these chances should not be impaired

by an incomplete operation based on the clinical diagnosis of benignancy. A malignant growth in its earliest stages has no more definite symptoms than pregnancy in the early days.

In the surgical pathologic laboratory of the Johns Hopkins Hospital, 33 per cent of all sarcomas came under observation as recurrent tumors, and in 75 per cent of these the primary tumor was small, operable and, with the rarest exceptions, apparently curable. But, because of its small and apparently innocent character, it was enucleated or shelled out.

I would sincerely appreciate if readers of this letter will report to me instances of this kind in their observations. It is a simple message, and I feel confident that if properly brought to the attention of the medical profession, mistakes of this kind will cease.

JOSEPH C. BLOODGOOD, M.D., Baltimore.

IODIZED OIL IN THE GASTRO-INTESTINAL TRACT

To the Editor:—An experience that I have had with the use of lipiodol should be reported, to prevent a repetition. As this oily radiopaque substance had been employed successfully in the roentgen-ray investigation of various parts of the body, such as the lungs and the spinal cord, it occurred to me that it might prove to be ideal in a radiographic study of the anatomy and physiology of the gastric rugae along the lines of Forsell of Sweden. Because of the oily nature of the substance, I believed that on reaching the cardiac portion of the stomach, after being swallowed, it would gradually spread toward the pyloric ring and coat the mucosa in a manner to permit of a careful study of the gastric rugae over a prolonged period of time. I gave my patient three level teaspoonfuls of the lipiodol, and the manner in which the substance behaved appeared very encouraging. By the following morning, however, the patient had developed severe symptoms of acute iodine poisoning. I had failed to realize that gastric digestion would liberate free iodine, for absorption. The patient recovered.

JACOB BUCKSTEIN, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TRANSILLUMINATION FOR DIAGNOSIS OF SINUS DISEASE

To the Editor:—I have bought various sinus transilluminators for the last ten years. The salesmen, the illustrated "case reports" of the company's literature, the attractiveness of the instrument, all make me think that I'm getting a bargain. Here is my question: Is there a make of transilluminator that actually does show pus in the sinus? All I ever get is the dull red glow of the hemoglobin in the skin, the same as one gets when one transilluminates the closed fingers. Theoretically, they are all efficient; practically, I have found none. I have been in clinics where the clinician deftly manipulated the lights and told his students that he saw the shadow of pus. Careful scrutiny on my part shows only the same dull glow, all alike. I wonder whether others have the same results. Could you name a good transilluminator? Please omit my name.

M.D., Illinois.

To the Editor:—Not knowing of better authority. I am asking you to give me your opinion as to the value and reliability of transillumination. The statement was made to me that transillumination is more accurate than the roentgen ray, but I am not, at this time, convinced that such is a fact.

WILLIAM R. BARRY, M.D., Alex, Okla.

ANSWER.—Transillumination is of value only to the frontal sinuses and the maxillary sinus, or antrum of Highmore. There are many fallacies to the test, no matter what form of transillumination is used. In the first place, one often gets a shadow on one or the other side when no pus is present, because of the fact that there is either thickened mucous membrane or very thin bone on that side, that the cavity on that side is very small, that there is a tumor, or that there is no cavity at all. On the other hand, one often gets clear transillumination even though there is fluid in one or the other sinuses. We cannot explain this phenomenon, but it does occur in practice. In other words, the transillumination must be used like any other laboratory tests, and if it fails to confirm the clinical findings, it must be often discounted or entirely disregarded. So far as the red glow is concerned, that should be present on the side that is clear, and absent on the side that is obstructed.

There are two methods of transilluminating the maxillary sinuses. One is to place the light, or rather the lamp, in the mouth and have the lips closed, and then look for the band of red light under the eye and in the pupils, the latter being due to the retinal reflex. Another method is to place the lamp on the floor of the orbit, open the mouth, and then look in the mouth and see the red glow on the hard palate if the sinus is clear. The latter method can be used only for the antrum of Highmore.

There are many forms of transilluminators, but it is better to use a very small cool lamp, as the lamp can be used in the floor of the orbit without causing any discomfort to the patient. The large lamps that are placed inside the mouth, especially those that are used with 110 volt current, cause a great deal of discomfort to the patient because of the heat produced. Furthermore, using any apparatus in the mouth necessitates that it be sterilized before using on the next patient. For the lamp that is used on the floor of the orbit, sterilization is not necessary, and if small lamps are used, as stated before, there is very little discomfort.

In transillumination of the frontal sinuses, of course, the light, whether large or small, is placed above the inner canthus of the eye and pressed against the floor of the frontal sinus.

Transillumination is largely a matter of relativity, in that there must be a comparison between the amount of light emitted when the lamp is passed from one side to the other.

CONGENITAL DISLOCATION OF FIBULA

To the Editor:—I recently delivered a male child with a congenital dislocation of the right fibula at its articulation at the ankle joint. The fibula is displaced posteriorly, leaving a marked depression at the point at which it should normally be located. This state of affairs evidently occurred some time ago while the child was still in the uterus, as it is impossible to replace the fibula to the normal position. There is also an abnormal eversion of the foot. In your opinion, what would be the best time to attempt correction of this deformity, and what type of operation would you advise?

L. D. CUTTING, M.D., Stevens Point, Wis.

ANSWER.—The proper time to attempt to correct this deformity is immediately on its recognition. Many of these dislocations can be simply reduced by closed manipulation. If unsuccessful after a fair trial of closed manipulation without anesthesia, and secondly under anesthesia, an open operation is indicated; this operation consists of splitting the capsule, replacing the head and suturing the capsule. It is rarely necessary to use any further internal fixation; but, when this is indicated, catgut is usually sufficient.

The foot should be then slightly overcorrected and held in plaster of paris, followed by a simple brace.

It is important to determine whether the condition is a real congenital dislocation of the fibula, or whether it is a slipped epiphysis.

TRYPSOGEN

To the Editor:—I desire to inquire whether the claims that G. W. Carnrick Company makes for Trypsogen are correct when it states that the rebuilding of the injured pancreas, the correction of the faults of digestion and absorption, and overcoming the defective carbohydrate utilization are possible only by the oral administration of this product, as per their circular entitled Diabetes Mellitus.

PHYSICIAN, Colorado Springs, Colo.

ANSWER.—Trypsogen, G. W. Carnrick Company, is a pancreatic preparation for oral use claimed (in the circular to which our correspondent refers) to effect "a *curative* action in diabetes by furnishing the specific active principles and proteins necessary for rebuilding the injured pancreas." It is stated to present "all the active principles of the pancreas, together with $\frac{1}{200}$ gr. each of gold bromide and arsenic bromide."

As long ago as 1913 in discussing this preparation, which had been and was then being widely exploited, THE JOURNAL stated: "Were it of any value in this disease [diabetes], it would have won world-wide recognition for itself ere now, . . . As conditions of experiment in this question are

extremely complex, it is not surprising that occasionally apparently positive results should have been obtained. Were it really useful, it should have yielded positive results much more uniformly. . . . Furthermore, if pancreas were really efficacious in the treatment of diabetes mellitus, the addition of arsenic, of gold, of bromide would be entirely unnecessary" (THE JOURNAL, Nov. 1, 1913, p. 1649).

In one of a series of articles on Glandular Therapy published under the auspices of the Council on Pharmacy and Chemistry (Application of Insulin in Internal Medicine, THE JOURNAL, Oct. 4, 1924, p. 1078), the following statements are made: "Of the three known pancreatic ferments, trypsin, amylase and lipase, trypsin alone has been shown successfully to resist drying and aging. . . . In diabetes, reliance on the oral administration of the pancreatic preparations thus far prepared has so little justification that such practice merits the most vigorous condemnation. To deny insulin to a patient with a tolerance for carbohydrate low enough to require it, and to substitute for this now well established drug some oral pancreatic medication, is comparable to treating cancer by massage. Many reputed antidiabetic pancreatic preparations are on the market with claims that they are effective if taken by mouth. . . . The claim that such preparations exert, in some mysterious manner, a rejuvenating or stimulating action on the diseased pancreas is based on uncontrolled clinical observation and chiefly on testimonials deserving no more consideration than do the similarly ill founded claims of the venders of 'patent medicines.'"

An insulin preparation effective when administered by mouth would be most desirable; but there is no evidence to indicate that such a preparation has been evolved. The caution made editorially in THE JOURNAL, Sept. 1, 1923, p. 753, still holds good: "It is desirable to give wide publicity to the current limitations of a most promising therapy, since unscrupulous venders of drugs are already attempting to distribute just-as-good pancreatic preparations that are recommended for oral use."

NORMA

To the Editor:—What is "Norma"? I have a patient who insists on taking it. M.D. Texas.

ANSWER.—Norma is a "patent medicine" exploited by a concern with the somewhat imposing name, Norma Laboratories, Inc., Albany, N. Y. It is advertised under the claim that it will lower blood pressure. Inquiries sent to the concern asking for information regarding the chemical composition of the nostrum have been ignored. As the thing seems to be a rather insignificant piece of quackery, and but few inquiries have been received regarding it, the A. M. A. Chemical Laboratory has not felt justified in going to the expense of making a thorough analysis of the preparation. As most products recommended for lowering blood pressure contain nitrites, qualitative tests were made for these and found to be positive.

TREATMENT OF DERMATITIS HERPETIFORMIS

To the Editor:—Kindly outline a course of treatment for a case of dermatitis herpetiformis of two years' duration. The following have been tried with little benefit: Dietetic: elimination of protein from the diet; salt-free diet. Medicinal: solution of potassium arsenite (Fowler's solution), bromides. Physiotherapeutic: quartz light. It has been suggested that this case would be benefited by balneotherapy. Do you think that it may be of value in this case and if so is a sojourn at a sulphur spring indicated? Would appreciate a list of resorts where sulphur springs are present. I. E. R., Bangor, Maine.

ANSWER.—Patients with dermatitis herpetiformis often receive considerable relief from the itching through the use of sulphur baths. It is not necessary to visit a sulphur spring for this purpose, as the baths can be taken at home. The patient should place about 2 tablespoonfuls of sulphurated potassa in the bath water. This has the disadvantage of discoloring the tub. Sulphur used in ointment form in a strength of 5 to 10 per cent is a useful application.

It is advisable that a search for focal infections be made, and proper treatment employed if any are discovered.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD OF OTOLARYNGOLOGY. Colorado: Denver, Sept. 13. Sec., Dr. H. W. Loeb, 1402 So. Grand Blvd., St. Louis, Mo.

NEW HAMPSHIRE: Concord, Sept. 9-10. Sec., Dr. Charles Duncan, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 20-23. Chief, Professional Exams. Bureau, Mr. Herbert J. Hamilton, State Education Building, Albany.

OKLAHOMA: Oklahoma City, Sept. 14-15. Sec., Dr. J. M. Byrum, Shawnee.

WISCONSIN: Basic Science Board, Madison, Sept. 18. Sec., Dr. M. F. Guyer, University of Wisconsin, Madison.

A POSTER FOR THE EDUCATION OF THE LAITY

Following is a miniature of a large poster which attracted so much attention from physicians attending the Dallas session that it has been reproduced in quantities in a large (22 by 28) attractive two color poster on enameled, cloth-mounted paper, suitable for display in health shows, exhibits, lecture halls, classrooms or offices. Copies are available from American Medical Association Headquarters at 50 cents. For five or more the price is 40 cents each.

ESSENTIALS FOR ALL WHO TREAT THE SICK

1. **A Knowledge of the Human Body and Its Normal Structures and Functions.**
2. **A Knowledge of All Common Diseases so as to Know What Disease Is Present.**
3. **A Knowledge of the Many Remedial Agents; Ability to Apply the One Most Needed.**

Minimum Education Required in All Civilized Countries for Those Who Treat the Sick

1. **Four Years of High School.**
2. **Two Years of College (Including Physics, Chemistry and Biology).**
3. **Four Years in a Medical College.**
4. **One Year's Internship in a Hospital.**

This special poster is being supplied in response to a definite demand from a number of physicians who saw the original poster at Dallas and were so struck with the telling words into which the essentials for all who treat the sick have been condensed that they wanted copies for display. The truth of these statements will be apparent to the laity as well as to the profession, and the poster, placed where people can read it, will be a constant, effective plea—in fact, a compelling argument—for scientific medicine.

Social Medicine

THE PRACTICAL VALUE OF NEWSPAPER PUBLICITY IN THE CONTROL OF CANCER

HARRY C. SALTZSTEIN, M.D.
DETROIT

It is still recognized that the most important factor in the prognosis of any case of cancer is the duration of the disease before treatment has been instituted. Hence, anything bearing on early recognition is pertinent, and justifies a brief account of a few methods and results in the recent cancer week campaign in Detroit.[1]

As before,[2] the campaign consisted of (*a*) newspaper publicity culminating in (*b*) the visit of a well known authority on cancer, and (*c*) free cancer diagnosis clinics at all hospitals. Jan. 3, 1926, the newspapers carried the first announcement of the campaign. From then, until the visit of Dr. Francis Carter Wood, January 21, and the clinics four days later, an increasing amount of publicity and information about the disease was carried. From January 25 to January 30, eleven hospitals conducted clinics for the free diagnosis of cancer.

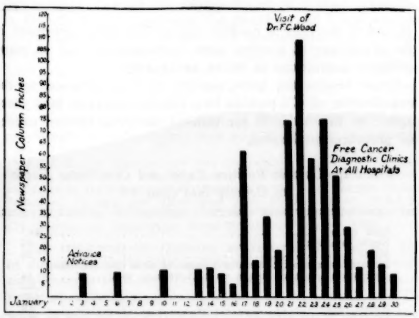
PUBLICITY

During this time, the three daily newspapers of Detroit carried 831 column inches of news about cancer. This is equivalent to more than four total pages of eight columns each. It represented sixty-six individual items, and contained most of the information deemed advisable for the public to have.[3] To get busy metropolitan daily papers (the total daily circulation of these papers is 800,000) to devote this much space to such an ordinarily uninteresting topic as cancer, a few principles of newspaper publicity must be borne in mind.

Editors and publishers will gladly cooperate in a movement of this sort and will assign special feature writers, donate advertisement space, and give "cancer" priority, as the occasion and the policy of the paper permit. It must be appreciated, however, that newspapers are commercial enterprises. They are not conceived primarily as mediums for the betterment of human welfare or popular education, but must print what their public wants to read. Though the audience of the press varies—some papers catering to much higher intellectual levels than others (even as communities vary in their intellectual level), it is a general rule that what the vast majority of persons want to read is a "reflection of their own emotions." Since the two cardinal emotions are love and a fight, it is natural that sex problems, divorce, human interest tales, crime and adventure fill much of the news columns; that the unusual, a debate, an issue, a fight, something about to happen, are front page headlines; but that the later apology, the after-results, scientific data and reports (unless they can be made into a discovery) receive a brief inside mention. The former contain appeals to human emotion, and people want to read of them; the latter contain no issue or appeal. The successful news story must have a fight involved (the Shenandoah fighting the elements); it is preferable that it be a personal fight (Red Grange vs. the entire football world); that the combatants be well known (Bryan vs. Darrow) or of such attainments or human interest that the public can quickly know them (Colonel Mitchell's attack on the army), and finally there should be a marked element of suspense (Floyd Collins: alive? dead? in the cave).[4]

The practical bearing of all this is that cancer, to be news, must become an issue. "Cancer Week Drive" and "Medics to Fight Cancer" will supply the human interest feature. Much more information about cancer will then be printed if every one knows that a "cancer week" is a short time hence—if there is the suspense of something about to happen—than if the same amount of data were submitted without being clothed with any issue. The typical advance article will contain a paragraph or two about the forthcoming arrangements, and then not more than a paragraph of facts about cancer. As the "campaign" develops, cancer will be more and more news, and much more information about the disease will be printed.

It must be fully appreciated that popular interest cannot be held for any great length of time. Throughout the course of a year, very few items hold the headlines for more than a week—the public tires. The average time spent on the entire perusal of the morning paper is fifteen minutes; of the evening paper, from twenty to twenty-five minutes. The publicity should lead up to a week of considerable activity, and then must stop. The advance articles will be best read if not more than from one-fourth to one-half column in length.



News space devoted to cancer during cancer week in Detroit, 1926.

During the week, if a well known authority arrives to deliver a series of talks on cancer, the campaign takes on the aspect of a personal encounter with a well known individual involved. Cancer then has all the news features of a big story and will easily be a front page topic of one, two or three columns for one, two or three days. Dr. Francis Carter Wood's addresses were given an immense amount of news space under such captions as "Noted Cancer Expert Arrives Today" or "Foe of Cancer Flays Quacks." The opportunity can be taken to give definite and detailed instructions about the disease, which would otherwise be very difficult to make into news. After this, the news value is gone. A summary of results obtained was given to the papers ten days after the hospital clinics closed. Although this represented the gist of the campaign, it was now only scientific data or reports, of little desirability as news. One newspaper did not print any of it; the second printed a few brief sentences; the third ran a condensed article through two thirds of the daily edition.

The accompanying chart graphically demonstrates the short advance notices, the peak during Dr. Wood's visit, the sus-

1. The campaign was financed by the Wayne County Medical Society, directed by a committee consisting of G. Van Amber Brown, chairman, and Drs. W. A. Evans, W. D. Barrett, C. F. Vale, C. E. Dutchess and C. I. Owen.

2. Saltzstein, H. C.: Publicity in Cancer, J. A. M. A. **82**: 2140 (June 28) 1924.

3. Fifteen foreign language papers and neighborhood weekly and semiweekly commercial sheets copied some of this material in each of their issues during the drive. Though no estimate could be made, the additional publicity through these channels was considerable.

4. Merz, Charles: What Makes a First-Page Story? New Republic, Dec. 30, 1925, p. 156. These illustrations are taken from the most successful news stories in 1925.

tained publicity for another two or three days before the clinics opened, and the rapid falling off soon after, while the clinics were being held.

RESULTS

The free clinics at eleven hospitals examined 2,345 people who suspected that they had cancer.

Table 1 shows the percentage of positive cases (cancer and conditions that may become cancer) found at the various hospitals. From 14 to 22 per cent were found positive; two thirds of all the hospital examinations (Harper, Ford, Grace, Receiving, Deaconess, Woman's, Delray) showed between

TABLE 1.—*Findings in Cancer Examinations in Detroit Hospitals*

Hospital	Positive	Negative	Per Cent Positive
Harper	68	400	14.5
Grace	27	160	14.5
Woman's	9	45	16.6
Henry Ford	110	523	17.2
Deaconess	27	131	17.0
Receiving	17	79	17.7
Delray	11	51	17.7
St. Mary's	26	103	20.2
St. Joseph	17	60	22.1
Highland Park	38	138	21.6
Providence	45	157	22.3
Total	395	1,847	

14 and 17 per cent of positive cases. The close agreement in the percentage of positive cases in examinations at so many different institutions is rather noteworthy.

These results are quite similar to those obtained in the examination of 874 persons in a similar campaign two years ago.[5] At that time 13 per cent of the total showed cancer or precancerous lesions.

TABLE 2.—*Data in Positive Cases and Conditions Liable to Develop into Cancer* *

Skin cancer	47
Senile keratoses	33
Moles	54
Irritated warts, miscellaneous tumors of skin (not including sebaceous cysts or simple warts, keratoses, etc.)	34
	168
Breast cancer	18
Doubtful breast cancer	11
Benign tumors of breast	61
	90
Cancer of lip	9
Doubtful cancer of lip	6
Irritation from teeth fissures, etc	6
Benign tumor of lip	10
	31
Mouth cancer	1
Doubtful mouth cancer	6
Irritation from broken plates, teeth, etc	17
Leukoplakia	16
Chronic irritation of tongue	6
Benign tumors of mouth	6
	52
Carcinoma uteri	14
Suspicious bleeding	15
Stomach cancer	3
Rectal cancer	2
Hematuria	2

* Only previously unsuspected or untreated cancers are included. Hopeless or adequately treated growths were not counted as having been discovered in the clinics.

Table 2 shows the positive cases, those definitely diagnosed as cancer, or conditions which, if left alone, might develop into cancer.

Since so many diagnoses could not be final in a brief examination, no separate total of cancers discovered is made. Positive cases include all of the conditions shown in table 2.

As was expected, the best results were obtained in the more easily noticeable external growths; forty-seven skin cancers were discovered. Ninety breast tumors were discovered, in eighteen of which a positive diagnosis of cancer was made, and eleven more were highly suggestive of cancer. Mouth lesions were again interesting from the point of view of prophylaxis, many cases of leukoplakia, irritation from broken teeth, plates, etc., being seen, and fewer cancers. Since cancer of the mouth always starts from leukoplakia, persistent irritation, chronic inflammation or warts, and never in a normal mouth,[6] these figures were considered quite gratifying. Gastro-intestinal cases were again a disappointment. There were just three stomach and two rectal cancers diagnosed. These examinations could not be complete, of course, but the experience here corresponds with the previous campaign—gastro-intestinal cancers are not easily discovered by these methods. Twenty-seven patients with uterine fibroids, forty with hemorrhoids and a host of all sorts of dyspeptic patients, a large number of whom had remediable conditions for which they had not had adequate treatment, demonstrated again the possibilities of publicity applied to medicine, and hinted again at the vast untilled field of medical practice.

The results of the campaign did not show in any increase in the number of operations for cancer in the various hospitals, as listed in the daily bulletin of surgical operations published by the Wayne County Medical Society, nor did the surgical laboratories of two hospitals show increase in cancer material during and following the period of the publicity. But individual instances of the warnings and advice having been heeded were widespread enough to satisfy all of the local profession who treat cancer that there was an effect from the drive.

The following case may be cited as such an individual instance, and in illustration of the fact that early lesions are not heeded except when the patient is repeatedly warned:

Miss R. S., aged 42, when seen during the time of the cancer publicity two years ago, presented a small superficial non-indurated ulceration of one quadrant of the nipple, three-eighths inch (9.5 mm.) in extent. It had been present for four years (before that her corset had repeatedly rubbed the left nipple), but had remained stationary for several months, discharging slightly, often showing a tendency to heal. It was very early Paget's disease of the nipple. As it did not respond to a few weeks' cleanliness and protection,[6] excision was advised. She could not quite make up her mind to consent, canceled the hospital reservation, and disappeared from observation. This cancer week made her again suspicious. The lesion had now grown somewhat, so that it occupied one third of the nipple; it was covered by a grayish crust, and the breast beneath it felt firmer than the opposite side. She was examined at one of the hospital clinics, and finally consented to a radical removal. Microscopic examination showed typical carcinoma cells in the ducts beneath the nipple, but nowhere had they yet broken through the basement membrane. Thus, two publicity campaigns were necessary to make this woman undergo treatment while the disease was still in the early stage of development.

Though no figures are available, the impression is distinct that earlier cases of cancer are seen during the period of the publicity than at other times. Especially is this so in tumors of the breast, skin and uterus. Many more borderline lesions, often presenting more than the usual diagnostic difficulties, are seen during "cancer week" than during routine practice throughout the year.

COMMENT

Most of the clinical articles on cancer in medical journals comment on the late stage in which cases come to treatment. The authors frequently deplore the situation. In this situation there is no more valuable instrument to use than the daily newspaper. Its ceaseless activity, its wide human interest,

5. Bloodgood, J. C.: Cancer of the Tongue, a Preventable Disease, J. A. M. A. **77**: 1381 (Oct. 29) 1921.

6. Bloodgood, J. C.: Paget's Disease of the Nipple, Arch. Surg. **8**: 461 (March) 1924.

its tremendous appeal, reaching the entire community, both lay and professional, can be made to tell the whole story of "cancer—how to beat it," at least to the possibilities of the control of cancer by popular education, and the saturation of the community with this sort of endeavor at any one time.

306 Kresge Building.

Book Notices

PUERPERAL SEPTICAEMIA: Its Causation, Symptoms, Prevention and Treatment. Being the Substance of a Thesis Submitted to the Royal Society of Medicine in June, 1924, and Awarded the Nicholls Prize. By George Geddes, M.D., C.M. Cloth. Price, $4. Pp. 200, with illustrations. New York: William Wood & Co., 1925.

Dr. Geddes attempts to prove by a statistical study that there is a definite relation between the incidence of industrial accidents and puerperal infections. We must express our admiration for one who will devote such indefatigable energy and industry to a subject that has long been a matter of common knowledge: years before the antiseptic era it was known that puerperal infections were more prevalent among women in centers of population than in rural districts. However, it is apparent that the author has not proved his claim that the incidence of puerperal infections increases proportionately to the frequency of industrial hazards. It is common experience that when one attempts by a statistical study to prove a definite contention, figures fail to demonstrate the extraneous factors which affect that contention, and as a result the deductions are prone to present fallacies. A critical study of the table from which all his bases are derived does not show that industrial accidents alone affect the incidence of puerperal infections. A summary of the table demonstrates this assertion:

Type of District	Population	Mean Rate—Puerperal Fever per 1,000 Births	Accidents per 50 Births
Residential	140,831	2.00	8.1
Rural	242,565	2.63	17.3
Mixed	295,068	2.65	12.0
Weaving	117,533	2.67	13.5
Spinning and weaving	366,278	3.01	20.0
Spinning	237,973	3.70	23.6
Mining	303,721	3.81	104.0

This summary shows that the residential district with one thirteenth of the accidents that occur in the mining district has somewhat more than 50 per cent of the puerperal infection rate obtaining in the mining district. Dr. Geddes writes from the point of view of the general practitioner: he contends that the medical man carries the infection from the infected accident cases to his parturient women—he alone is responsible. He objects strenuously to the opinion that there may be an auto-infection: on page 5 he expresses his doubt: on page 21 he states that "there are a few members of the profession who pin their faith to the auto-infection therapy—a dangerous theory if it acts as a salve to a troubled conscience." We feel as strongly as Dr. Geddes does that the attendant should weigh the evidence of his responsibility, but we cannot subscribe to the denial of the opinion that there may be an autogenous infection in the puerperal period. Surely, an appendicitis, a cholecystitis, other regional infections may arise from within the body; it is just as plausible to believe that there be a definite incidence of a puerperal autogenous infection. It is dangerous teaching, with our present knowledge, to maintain that the attendant is always responsible for the infection. Exception may be taken to the statement on page 144: "Then there is the question of rubber gloves. If these are worn there need not be the same care bestowed upon the hands." There must be the same meticulous attention to the cleansing of the hands with or without the use of the gloves, for rubber punctures or tears so readily that unclean hands within the gloves may be an actual menace. Nor is the statement that a vaginal douche (page 149) is sufficient preparation for a vaginal examination an acceptable one. It is not in consonance with American and continental teaching that all puerperal infections are to be given either vaginal or intra-uterine douches twice daily as a routine. Dr. Geddes does not discriminate in the indications for one or the other. The statement on page 160 that the mortality of puerperal sepsis in England is between 71.4 and 80 per cent is startling; nothing in the tables warrants such an assertion.

LE RÊVE ET LA PSYCHANALYSE. Par le Dr. R. Laforgue. Avec la collaboration des docteurs Allendy, Ed. Pichon, R. de Saussure. Introduction de M. le Dr. Hesnard, Professeur de l'Ecole médecine navale de Bordeaux. Paper. Price, 12 francs. Pp. 248. Paris: A. Maloine, 1926.

This explains simply but in fair detail the importance of dreams in psychanalysis. Due justice is paid to Freud, and his doctrines form the basis of the book, which is really a summary of his work, although the examples and interpretations are all from original French sources. The book is divided into three parts. The first is historical, and gives a good description of ancient and modern dream conceptions. Authors from the ancient Greeks, Romans, Persians and Chinese are quoted; the superstitions and ideas of the value and meaning of dreams held by the natives of Scandinavia, Greenland, North America (Indians), Madagascar, Pacific Islands and many other places are sketched. The older French conceptions of dream import are fully explained in another chapter, and prefreudian interpretations are minutely detailed. The second portion of the book is concerned with the technical side of the interpretation of dreams according to Freud's method, and here the manifest and latent content of dreams, their significance and interpretation, and transference are all discussed. The third and last part of the book consists of clinical cases. Here concrete examples of dreams are cited, the interpretations given, and resultant cures of the patients related. This is altogether a good introductory volume in French of the value of dreams in psychanalysis, and the part they play in the cure of neuroses.

THE X-RAY IN EMBRYOLOGY AND OBSTETRICS. By W. A. Newman Dorland, A.M., M.D., F.A.C.S., Professor of Gynecology and Obstetrics and Head of the Department of Obstetrics in the Post-Graduate Medical School of Chicago, and Maximilian John Hubeny, M.D., F.A.C.R., F.A.C.P., Editor of Radiology. Cloth. Price $10. Pp. 420, with 259 illustrations. Saint Paul: Bruce Publishing Company, 1926.

This represents an immense amount of work on the part of the authors in reviewing a voluminous literature; it really constitutes a collective review and bibliography that should prove of value as a reference to students of this subject. The book is put up in presentable form, printed on good paper, and is profusely illustrated with carefully selected roentgenograms. The first chapter, on the influence of roentgen rays and allied substances on living tissues, is a collective review emphasizing the harmful effects of the roentgen ray in pregnancy, but fails to distinguish between the effects of therapeutic and roentgenographic dosages. Bartelmez says in this connection in the introduction: "With the short exposures now employed in x-ray diagnosis it is highly improbable that either germ cells or embryos can be affected. When, however, they or the gamma rays of radium are used therapeutically there is always a possibility that grave disturbances of development may result." In chapter II, under embryonic development of the osseous system, the important contribution of Hess on the extracorporal fetus is extensively quoted, and under the same heading Stein and Areus are cited without designating that all the latter's observations were on the intra-uterine fetus, a most important distinction. Chapter VII deals with radiography of the pelvic organs, describing the use of pneumoperitoneum. Only about two pages are devoted to this rather important radiologic accomplishment, while a hundred pages each are devoted to literature citations on embryology and on teratology. The authors seem to have had little experience with pneumoperitoneum, for they state that "normal fallopian tubes are not seen as separate or recognizable shadows," and, again, that "normal ovaries apparently cannot be seen in the pelvic radiograph." The use of opaque mediums in the field of diagnosis is entirely omitted from this chapter, although valuable papers have been contributed since 1920 by Heuser, Forrestier, Ken-

nedy and others. In a later chapter, Heuser is briefly cited in this connection. The illustrations have been collected mostly from other sources and usually the author is given credit; but on page 255 three illustrations appear without evidence as to their source, leaving the reader with the impression that they are the authors' while in reality they belong to Stein and Arens. On the opposite page, "justo minor pelvis—Dorland" appears. If this work is to be of real value to the practitioner of medicine, the chapter on the roentgen-ray diagnosis of normal intra-uterine pregnancy should be at least as fully illustrated as the rest. Unfortunately, this is not so. Descriptive drawings accompanying the roentgenograms would have added greatly to the value of the work. It is obvious that the authors have had more personal experience with the roentgen ray in teratology, having devoted one fourth of the entire work to this interesting but least important aspect of obstetrics.

A TEXT-BOOK OF MEDICAL DIAGNOSIS. By James M. Anders, M.D., Ph.D., LL.D., Professor of Medicine, Medico-Chirurgical College Graduate School of Medicine, University of Pennsylvania, and L. Napoleon Boston, A.M., M.D., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Third edition. Cloth. Price, $12. Pp. 1422, with 555 illustrations. Philadelphia: W. B. Saunders Company, 1925.

In the field of medical diagnosis there are not many books of the type of Anders and Boston; nor, perhaps, is there any type that is more valuable. This sort of work is a bedside book; not in the sense that its 1,422 pages could be taken to the bedside but that it is the product of long years of bedside observation, minute and keen, executed and recorded by authors who have been ready to check up their sense gained evidence in modern laboratories, and to welcome laboratory methods as an addition to their methods. They have incorporated all their experience in the book. There is the usual division into diseases of the respiratory system, circulatory system, etc., with their various subdivisions. Under each disease are given the data, clinical and laboratory, that may be useful in arriving at a diagnosis. This makes it unnecessary for the physician to consult one work on physical diagnosis, another on general medicine, another on laboratory procedures, and so on. Much new material has been added in order to bring the work down to date.

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the use of practitioners and students of medicine. Originally written by the late Sir William Osler, Bt., M.D., F.R.S. Revised by Thomas McCrae, M.D., Fellow of the Royal College of Physicians, London. Tenth edition. Cloth. Price, $7.50. Pp. 1233, with illustrations. New York: D. Appleton & Co., 1926.

In preparing the tenth edition of this classic practice of medicine, the type has been completely reset. Dr. McCrae points out that constant effort has been made to retain the features characteristic of Osler. The additions have been carefully chosen with a view to permanence rather than to strict up-to-dateness by the inclusion of unestablished views. Obviously, however, recent work on scarlet fever, tularemia, hypertension and many unusual disturbances of the blood and blood-forming organs have had to be included. The new type is clean and easily read. The editor has been careful to use the best established nomenclature. This book continues to maintain its supremacy among textbooks on the practice of medicine.

HANDBUCH DER PRAKTISCHEN THERAPIE ALS ERGEBNIS EXPERIMENTELLER FORSCHUNG. Herausgegeben von Reinhard von den Velden, A. O. Professor an der Universität Berlin, und Paul Wolff, Dr. Med. et Phil., Berlin. Erster Band. Erste und Zweite Hälfte. Paper. Price, 66 marks. Pp. 1137, with illustrations. Leipsic: Johann Ambrosius Barth, 1926.

The idea underlying this ambitious work is that therapeutics will have to be presented in a different manner than it has been in the past to escape the criticism, on the one hand, that therapy is unscientific and, on the other, that scientific medicine has neglected practical therapeutics. True it is that the classic forefathers of scientific medicine focused their attention on pathology and diagnosis and had little to say about therapeutics, because its scientific foundation was at that time pitifully weak. The following decades have, however, enriched our knowledge by the development of pharmacology, chemical pathology and physics to such an extent that we now have quite a respectable foundation for a "practical therapy based on experimental research," to which this monumental work is dedicated. The first volume is essentially a collection of monographs on pathologic physiology. But the subject is developed just one step more than is usually the case with books on this subject: the all important step of how and to what extent the various pathologic processes may be influenced therapeutically. The editors have been fortunate enough to enlist some of the most eminent investigators of Europe in cooperation on this task. The result, though excellent in most respects, is a certain amount of overlapping of fields and even of difference of opinion on some questions. This, however, perhaps even adds to the value of a book not written for medical students so much as for their teachers and for practitioners of medicine in general. If the second volume, which is to deal with special therapy, will be as stimulating and inspiring as well as instructive as is the first volume, the editors as well as readers may indeed be congratulated.

A MANUAL OF CLINICAL LABORATORY METHODS. By Clyde Lottridge Cummer, Ph.B., M.D., Associate Professor of Clinical Pathology, School of Medicine, Western Reserve University. Second edition. Cloth. Price, $6.50. Pp. 547, with 181 illustrations. Philadelphia: Lea & Febiger, 1926.

The previous edition of this work was issued in 1922. In the present edition the original plan and purpose have been retained, in the main, with the addition of less than a hundred pages. Nevertheless, although the bulk is not greatly increased, the number of additions and changes is considerable. As the author points out, the original chapter on blood now comprises five chapters, and includes new material on the subjects of complement fixation, the anemias, and chemical examination of the blood. Further new features are found in the sections on urinary pigments, parasites, spinal fluid examination, cutaneous reactions, basal metabolism and liver function. Proportionally the sections on blood work take up nearly half of the book and the remainder is well apportioned to examination of the urine, the gastric and duodenal contents, the feces, the sputum and the body fluids, together with chapters on basal metabolism and bacteriologic methods. An appendix comprises preparation of solutions, stains, lists of apparatus and other matters necessary to know in the running of a clinical laboratory. The work is handy, concise and well illustrated—a distinctly practical book.

HUMAN PHYSIOLOGY. By John Thornton, M.A. Revised by William A. M. Smart, M.B., B.S., B.Sc., Department of Physiology, London Hospital Medical College, University of London. Third edition. Cloth. Price, $3.75. Pp. 463, with 281 illustrations. New York: Longmans, Green & Co., Ltd., 1926.

This is an exceptionally clear and reliable presentation of the essentials of physiology within a space of less than 500 pages. The illustrations are mainly anatomic. They are all clear cut and well chosen. The book is written primarily for medical students, but the author endeavors at the same time to present physiology as a science, and he has tried wherever possible to elucidate the principles of physiology in interpretation of the signs and symptoms of the more common diseases.

MIDDLE AGE AND OLD AGE. By Leonard Williams, M.D. Cloth. Price, $3.25. Pp. 296, with 1 illustration. New York: Oxford University Press, 1925.

Here is a volume of sound advice, either for the physician or for the public, on the hygiene of middle age and the period past 60. It is well written, although somewhat symbolical in its choice of chapter headings: for example, red lights, falling ground and the last phase. "Red lights," in this instance, concerns the detection of the earliest symptoms of decay. The book is well printed in large type, which will not place too great a strain on the old who are likely to want to read the book. It is perhaps the most sound of some half dozen volumes for the elderly which have recently made their appearance.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

ABHANDLUNGEN AUS DEM GESAMTGEBIETE DER KRIMINALPSYCHOLOGIE (HEIDELBERGER ABHANDLUNGEN). Herausgegeben von K. von Lilienthal, S. Schott und K. Wilmanns. Heft 4. Studien über Persönlichkeit und Schicksal eingeschriebener Prostituierter. Von Dr. Med. et Phil. Kurt Schneider, A. O. Professor für Psychiatrie, Universität Köln. Second edition. Paper. Price, 18 marks. Pp. 281. Berlin: Julius Springer, 1926.

Why girls go wrong as exemplified in the biographies and study of numerous German examples.

BIOLOGICAL RELATIONS OF OPTICALLY ISOMERIC SUBSTANCES. By Arthur R. Cushny, M.A., M.D., LL.D., Professor of Pharmacology and Materia Medica in the University of Edinburgh. Cloth. Price, $2. Pp. 80, with 4 illustrations. Baltimore: Williams & Wilkins Company, 1926.

Last essay of noted British pharmacologist.

BOT FLIES OF THE PUNJAB. By Captain H. E. Cross, M.R.C.V.S., D.V.H., A.Sc., Camel Specialist, Sohawa, Punjab. Agricultural Research Institute, Pusa. Bulletin No. 160. Paper. Price, As. 14 or 1s. 6d. Pp. 16, with illustrations. Calcutta: His Majesty's Service, 1926.

Identification and control of a pestiferous burrowing Hindu fly.

VORBEREITUNG, DURCHFÜHRUNG, NACHBEHANDLUNG CHIRURGISCHER EINGRIFFE: Grundsätze der Schmerzbetäubung, Aseptik, Wundversorgung. Von Professor Dr. Paul Zander, Chirurg des Elisabethenstifts Darmstadt. Paper. Price, 4 marks. Pp. 76. Leipsic: Repertorienverlag, 1926.

Practical monograph on care of infected wounds.

GEBURTSHILFLICHE TAGESFRAGEN. Von Med.-Rat Dr. Kupferberg, Direktor der Hebammenlehranstalt in Mainz, und den Anstaltsärzten Dr. Balhorn, Dr. Nelius, Dr. Koch und Dr. Werle. Paper. Price, 4.50 marks. Pp. 110. Leipsic: Repertorienverlag, 1925.

First aid to the uninspired obstetrician.

DIE HYGIENE DER MENSCHLICHEN FORTPFLANZUNG: Versuch einer praktischen Eugenik. Von Alfred Grotjahn, o. Prof. d. sozialen Hygiene a. d. Universität zu Berlin. Paper. Price, 15 marks. Pp. 344. Berlin: Urban & Schwarzenberg, 1926.

Practical eugenics.

FRIGIDITY IN WOMAN IN RELATION TO HER LOVE LIFE. By Wilhelm Stekel. In two volumes. Authorized English version by James S. Van Teslaar. Cloth. Price, $9. Pp. 618. New York: Boni and Liveright, 1926.

Latest scientific romances of well known out-Freuder of Freud.

DER ALKOHOLGENUSS UND DER ALKOHOLMISSBRAUCH VOM ÄRZTLICHEN STANDPUNKT. Von Chefarzt Dr. Med. Paul Engelen. Paper. Price, 1.20 marks. Pp. 23. Leipsic: Repertorienverlag, 1926.

What alcohol will do—physically and mentally but not socially.

DIE THERAPIE DER HERZKRANKHEITEN. Von Dr. Carl Haeberlin, Leiter des städtischen Krankenhauses in Bad Nauheim. Paper. Price, 1.50 marks. Pp. 34. Leipsic: Repertorienverlag, 1925.

Brief manual of therapy of cardiac disease.

NERVÖSE HERZERKRANKUNGEN U. IHRE BEHANDLUNG. Von Dr. Lilienstein, und Prof. Dr. Kastan. Second edition. Paper. Price, 1.20 marks. Pp. 32. Leipsic: Repertorienverlag, 1925.

Outline of diagnosis and treatment of cardiac neuroses.

EDUCATION AND THE GOOD LIFE. By Bertrand Russell. Cloth. Price, $2.50. Pp. 319. New York: Boni & Liveright, 1926.

A noted English liberal thinker defines his personal belief and practice in juvenile education.

FINAL REPORT ON THE SURVEY OF HOOKWORM INFECTION, GENERAL SANITARY CONDITIONS AND ORGANIZED HEALTH WORK IN THE STRAITS SETTLEMENTS. By M. E. Barnes, M.D., Dr.P.H., and Paul F. Russell, M.D. The International Health Board of The Rockefeller Foundation. Paper. Pp. 80. Singapore, 1925.

REPORT ON THE HEALTH OF THE ARMY FOR THE YEAR 1924. Volume LX. Cloth. Price, 3s. 6d. net. Pp. 146. London: His Majesty's Stationery Office, 1926.

UNITED FRUIT COMPANY, MEDICAL DEPARTMENT. Fourteenth annual report, 1925. Paper. New York: United Fruit Company.

Miscellany

DENTAL DISEASE IN CHILDREN

The Medical Research Council has published an investigation into the incidence of dental disease in English children. An investigation in 1921 showed dental caries exceedingly prevalent among children of school age. The results have not been of great value for scientific purposes for several reasons. The inspections were made by a large number of different persons whose estimates of the existence and extent of caries were divergent. Moreover, the object was to afford an indication or basis for treatment; hence, they were useful only for clinical purposes and not from an etiologic standpoint. The committee therefore decided that the collection of fresh data was necessary. The number of children now examined was 4,258. Of these, 2,163 were boys and 2,095 were girls. Their ages varied from 2 to 15 years. The selection of schools at which examinations were carried out was made with a view to securing the widest variety with regard to geographic, physical and industrial condition. Preference was given to schools whose children for various reasons had not received dental treatment. Selection was made in such a way that approximately the same number of children were chosen for each age period between 6 and 13.

The only reliable values that could be calculated from the data for the teeth in the different stages of eruption were the ages at which children were found with half the teeth of any type (1) partially erupted and (2) fully erupted. The ages at which 50 per cent of the several types of teeth were partially erupted and the order of eruption based on those ages are stated. Thus, lower first molars were present at 6.1 years; upper first molars, 6.2; lower central incisors, 6.4; upper central incisors, 7.3; lower lateral incisors, 7.6; upper lateral incisors, 8.6; upper first premolar, 9.9; lower canines, 10.4; lower first premolars, 10.6; upper second premolars, 10.8; lower second premolars and upper canines, 11.5; lower second molars, 11.7, and upper second molars at 12.2 years. Thus, the dates of eruption of the teeth in the lower jaw are earlier than those of the corresponding teeth of the upper jaw in all types except the premolars. The age of eruption was usually lower in girls than in boys. These dates of eruption correspond fairly closely to those determined by Röse in Germany. The time required for completion of eruption was obtained by determining the differences between the ages at which 50 per cent of each type were found present in any stage of eruption and the age at which they were fully erupted. The time required for completion of eruption of the upper first incisors and upper second incisors was 1.3 years; lower first incisors, 1.2; lower second incisors and lower canines, 1.1; upper canines, 1 year; upper and lower first premolars, 0.9; upper and lower second molars, 0.7; lower first molars and lower second premolars, 0.6, and for upper first molars and upper second premolars, 0.5 year.

The incidence of caries in particular teeth is in a measure influenced by the condition of the deciduous teeth. For example, the distal surface of the first permanent molar hardly ever becomes carious until after the eruption of the second permanent molar at the age of 12. On the other hand, the mesial surface frequently becomes carious early if the distal surface of the second deciduous molar is carious; and if the latter tooth is sound or has been treated, the mesial surface of the permanent tooth rarely becomes carious until some time after the eruption of the second premolar at the age of 10 or 11. The incidence of caries in deciduous teeth was difficult to determine, owing to the fact that between the ages of 7 and 12 the deciduous teeth are shed by natural process. Temporary molars manifested the highest incidence

of caries; the incidence was slightly higher in the second than in the first molars. The central incisors came next in frequency, and then the lateral incisors and canines. Of the various surfaces of the deciduous teeth, the mesial and distal surfaces were most frequently affected, with one exception. In the second molar teeth the occlusal surface was most frequently the seat of trouble.

In the upper central incisors, caries most frequently affects the mesial surface. The lower incidence on the distal surface is due to the late eruption of the lateral incisors that are destined to make contact with it. The mesial surface was involved in 62 per cent of carious central incisors, and the distal surface in 48 per cent. In children at the age of 10, which is three years after 50 per cent of the upper central incisors have erupted, the total amount of caries is approximately 3 per cent. At 12 years the incidence has increased to 5.5 per cent, and at 13 it has reached 9 per cent. The upper lateral incisors are affected in a percentage similar to the central. The mesial surface is the commonest site, and the lingual pit is often involved; the distal surface is rarely affected, presumably because of the late eruption of the canines. The mesial, lingual and distal surfaces of carious teeth are affected, respectively, in 83, 16 and 4 per cent. In children of 11, that is, three years after 50 per cent of the upper lateral incisors have erupted, the number of carious teeth of this description is 3 per cent. In children 2 years older, the percentage exceeds 7. The lower incisors are relatively free from caries. Thirteen instances were found in an examination of 6,314 lower central incisors, and the same number in 5,343 laterals. The canine teeth are also relatively free from caries. Nine cases were found among 2,144 teeth in the upper jaw, and only two cases among 3,094 in the lower. In children at the age of 7, which is one and a half years after the age at which 50 per cent of the upper first molars have erupted, the proportion of caries is 18 per cent. In children at the age of 9, 33 per cent of these teeth are carious, and at 13 the proportion has reach 52 per cent. At the age of 7, which is about one and a half years after the age at which 50 per cent of the lower first molars have erupted, the total percentage of carious teeth of this description is 28.5. In children two years older, the percentage has increased to 45. At the age of 13, the percentage of decay is 61.5. In the upper second molars practically all the caries is in the early stage and is almost confined to the fissures of the occlusal surface. Caries that is apparently lingual is really the result of extension on the lingual surface of one of the occlusal fissures. In children at the age of 13, which is nearly one and a half years after the age at which 50 per cent of the upper second molars have erupted, the total caries is 16.5 per cent. At the age of 14, the percentage has increased to 23.5. Caries in the lower second molars is nearly twice as frequent as in the corresponding teeth in the upper jaw. As in the first molars, caries of the buccal pit plays a part in causing this difference. At the age of 12 years, which is about a year after the age at which 50 per cent of the lower second molars have erupted, the proportion of carious teeth is approximately 28 per cent. In children two years older, the total percentage of caries in these teeth has increased to 44.

Arrested caries was found in only forty among 6,753 permanent teeth. Arrest of caries is more than six times as common in deciduous as in permanent teeth. In permanent teeth, it is recorded only in molars and premolars. Occlusal cavities are by far the most common site for its occurrence, and in most instances the caries is of the third degree of severity. This implies a considerable loss of enamel from the occlusal surface. These facts point to accessibility of the cavity as an important factor in the arrest of caries. It was noticeable that when arrested caries occurred mesially or distally in deciduous teeth, it was nearly always associated with wide spacing due to the growth of bone; this occasioned greatly increased accessibility. Another point bearing on the greater frequency of arrested caries in deciduous than in permanent teeth is the rapid wearing down of the occlusal surface of the former. This tends to make cavities shallower and to smooth off overhanging edges of enamel.

An attempt was made to investigate the incidence of caries as it occurred in schools in different parts of the country. It was found that caries was more frequent in town than in country schools. The question of hard and soft water supply was also investigated. It was not found possible to ascribe any etiologic significance to the character of the water.

In determining gingivitis, the slightest lapse from the typical firmness and paleness of perfect health was recorded as slight gingivitis. About a third of all the children examined fell into this class. In probably half of these the slight inflammation affected all buccal gingivae in both jaws and seemed obviously due to persistent neglect to clean the teeth. In most of the remaining children the condition was limited to the anterior upper teeth and was frequently associated with a history of enlarged tonsils and adenoids.

Medicolegal

Rulings in Action Against Roentgenologist—Evidence

(Butler v. Rule (Ariz.), 242 Pac. R. 436)

The Supreme Court of Arizona, in reversing a judgment for $1,000 damages obtained by plaintiff Rule, as administratrix, for the death of a woman alleged to have been caused by the negligence and unskilfulness of the defendant, a roentgenologist and physician, in administering a roentgen-ray treatment for a sarcoma of twelve months' growth in the left groin, says that the only expert testimony on the question as to whether the treatment described by the defendant as having been given was proper or not was the testimony of the defendant and that of another physician, who testified as a roentgen-ray expert. According to these experts, the defendant was not guilty of negligence or want of skill. In giving the treatment, he had exercised the care and skill usual among physicians and surgeons in good standing under similar circumstances—the standard to judge him by in the use of the roentgen ray as a remedial agent. However, if there was evidence as to the manner in which he administered the treatment in conflict with his testimony, and tending to show that in some essential the treatment was not given as the defendant stated, the expert testimony to that extent would fail, and a question of fact for the jury arise. The value of an answer to a hypothetic question may be destroyed, if the facts or some of the facts on which it is based are not conceded or proved as a part of the case.

While the defendant stated the distance from the target to the skin by measurement to be 15 inches, another witness, who was the only person present aside from the defendant during the treatment, testified that such distance was from 10 to 12 inches. A positive statement of the distance, arrived at by actual measurement, certainly should be taken against an estimate or guess, and, if the question involved only which of the two methods was the more accurate, this court would be willing to agree with the defendant that no conflict was created. But the question also involved the veracity of the witnesses. The jury might have concluded that the defendant did not measure the distance at all, and that his statement that he did was not true. Where there is a conflict in the evidence, the weight and credibility to be given the witnesses is always a question for the jury. If the jury believed the testimony of this other witness, the length of the treatment should have been limited, according to the defendant's own

testimony, to between thirteen and fourteen minutes, whereas it lasted thirty minutes. If the target was only 10 or 12 inches from the skin, under the expert testimony, the treatment was improper, and the defendant in its administration failed to use the care and skill usually exercised by the members of his profession similarly situated. So the court concludes that there was sufficient evidence of negligence or want of skill to take the case to the jury.

The negligence or want of skill in administering the roentgen-ray treatment, even if established, was not enough to entitle the plaintiff to recover. She must go further and show that the injury suffered in such treatment caused the death of her intestate or hastened such death. The defendant contended that all the evidence was to the effect that the woman died from cancer. It was true that two physicians testifying as experts said that in their judgment she died of sarcoma or cancer, and no one testified that the roentgen-ray burn caused her death, or hastened it, or contributed to it. Notwithstanding, this court thinks that the physical facts justified the trial court in submitting to the jury the question as to whether the burn received in the treatment caused or contributed to the woman's death, the evidence showing a swelling of her stomach and leg, blisters thereon, inability to rest, loss of sleep, and continuous pain and suffering, all of which came immediately after the burn, and doubtless were caused by it.

The rule seems to be that a physician who has attended a party is not disqualified to testify as an expert concerning such party's ailment, when he can disregard what he has learned in communicating with and examining such patient, and make his answers solely on the facts as related in hypothetic questions.

Expert witnesses may well be asked to explain the customary and correct methods employed by medical men in good standing in administering roentgen-ray treatments, for the purpose of guiding the jury in determining whether in the given case the defendant exercised ordinary care. Such customary and correct methods so detailed have no other purpose than to show the jury how the profession acts when exercising ordinary care and caution, and to establish for the jury's guidance the standard or degree of care to be employed by it in arriving at its verdict. The degree of care of a physician in good standing, operating roentgen-ray machines, is the same as physicians and surgeons in the general practice. This has been numerously decided.

Engagement of Hospital—Patient Committing Suicide

(Pangle v. Appalachian Hall (N. C.), 131 S. E. R. 42)

The Supreme Court of North Carolina affirms a judgment of nonsuit in this action brought by an administrator to recover damages for the death of one Suber and tried on allegations and denials that the man came to his death by reason of the defendant's negligence in failing properly to care for him while a patient in its hospital, which resulted in his committing suicide. The court says that the man's physician, who took him to the hospital, testified that the man was then in a depressed mental condition, bordering on melancholia; that he informed one of the managers of the hospital of the man's condition, as he had observed it, and told him how the man had recently spent a day in the graveyard, near his home, with a shotgun in his hands, under conditions which indicated suicidal tendencies. A little more than a month after he was taken to the hospital, where patients were treated for mental and nervous diseases, for private gain, the man committed suicide by hanging himself with a rope.

The only evidence as to how the suicide occurred was contained in a letter written by the manager of the hospital to the physician, following the man's death. A portion of that letter, in which the writer stated that the man had tried to jump in front of a truck about two weeks prior to his death, and which was offered to fix the defendant with further notice of the patient's suicidal mania, was excluded on objection by the defendant. The evidence was clearly incompetent, and the trial court committed no error in withholding it from the jury. The authorities in North Carolina are all to the effect that what an agent says relative to an act then being done by him within the scope of his agency is admissible as a part of the res gestae (essential circumstances of the case), and may be offered in evidence either for or against the principal; but what the agent says afterward, and merely narrative of a past occurrence, though his agency may continue as to other matters, or generally, is only hearsay, and not competent as against the principal. With that letter excluded, the supreme court thinks that the trial court properly held that the plaintiff had failed to make out a case sufficient to go to the jury on his allegations of negligence.

There can be no question about the liability of a privately owned or corporate hospital, conducted for individual gain, and not for charitable purposes, for damages to its patients resulting from negligence attributable to the agents of such hospital. Ordinarily, when a hospital like the present one undertakes to treat a patient without any special arrangement or agreement, its engagement implies three things: (1) That its physicians, nurses and attendants possess the requisite degree of learning, skill and ability necessary to the practice of their profession, and which others similarly situated ordinarily possess; (2) that its physicians, nurses and attendants will exercise reasonable and ordinary care and diligence in the use of their skill and in the application of their knowledge to the patient's case; and (3) that its physicians, nurses and attendants will exert their best judgment in the treatment and care of the case. In the application of this general principle, such hospitals have been held liable for the negligent failure of their officers or employees to guard and restrain insane or delirious patients and prevent them from doing injury to themselves. But this court need not enter on a discussion of general principles, which are well established, because in the instant case the plaintiff offered no sufficient evidence of the defendant's negligence. Allegations alone will not do; he must have some evidence also in order to support a recovery.

Convicted as Abortionist; Acquitted of Manslaughter

(Werner v. State (Wis.), 206 N. W. R. 898)

The Supreme Court of Wisconsin says that the verdict of the jury in this case was difficult to understand. The jury found defendant Werner, a physician and surgeon, guilty of using an instrument with intent to produce a miscarriage, and at the same time acquitted him of manslaughter. These conclusions seemed irreconcilable. If he committed the abortion, he was certainly responsible for the death of the deceased. If it were a verdict in a civil case, this court would probably say that it was inconsistent and would not permit it to stand. But this was a criminal case. This court's power over the verdict was somewhat different. This court could not review the verdict of the jury in acquitting the defendant of the charge of manslaughter. This court could not reverse the verdict of guilty, if there was the proper amount of evidence to support it. It was not at all improbable that the jury felt that the defendant would be sufficiently punished by his conviction of the lesser offense. However, this court need not speculate on the process of reasoning by which the jury arrived at its verdict. If it was wrong, it was wrong only so far as it acquitted the defendant of manslaughter. While the trial court erred in excluding some evidence, it was evidence of very slight probative value, and this court cannot believe that its exclusion amounted to prejudicial error. On a very thorough consideration of the entire case, this court comes to the conclusion with considerable assurance that the judgment of conviction of using an instrument with intent to produce a miscarriage should be affirmed.

It was contended that the evidence failed to show that the deceased was pregnant on the date in question. It might be readily conceded that, if it were necessary to establish this fact by the testimony of the physicians alone, the finding of pregnancy would rest very much in doubt. However, there were many other circumstances disclosed by the record which did establish very satisfactorily the fact that she was pregnant

during the time she was in the defendant's office immediately preceding her death. There was here a woman who, concededly, believing herself pregnant, repaired to a physician's office concededly for the purpose of treatments by that physician, and there was the further conceded fact that, while in his office, there was an actual invasion of the uterus. In the light of all these facts, the conclusion was permissible, if not irresistible, that she was in a pregnant condition when she went to the physician's office.

The defendant attempted to show by the testimony of two women that the deceased had talked to them on prior occasions about her pregnant condition, and that she told them she had used instruments on herself to induce flowing. This testimony was offered on the theory that the defense had the right to introduce prior statements made by the deceased which contradicted or tended to contradict her dying declaration that she was four months pregnant when she went to the defendant's office. The fact that menstruations are not usual during pregnancy perhaps raises a presumption that there is no pregnancy at times when menstruations occur, and this court is quite convinced that it would have been entirely proper to receive this evidence, and that its exclusion was error; but the court thinks that the value of such evidence would have been very slight, and that, in view of all the circumstances which indicated the woman's pregnant condition at the time in question, its exclusion could not be considered prejudicial.

The defendant admitted on cross-examination that fifteen or twenty years before he had been convicted of a violation of section 5480 of the federal statutes. He was permitted to explain that the offense for which he was convicted was a fraudulent use of the mails, but he was not allowed to make any further explanation. This court thinks that it was within the discretion of the trial court as to whether the examination along this line should proceed any further.

Practice and Profits of Chinese Doctor—Good Will

(Gouy Shong v. Chew Shee et al. (Mass.), 150 N. E. R. 225)

The Supreme Judicial Court of Massachusetts says that Joe Pang Suey, who died in April, 1917, left approximately $200,000 in cash in the house where he lived, besides other personalty. For several years before that time he was engaged in business as a Chinese doctor, practicing medicine in Boston without any certificate or authority required by section 2, chapter 112, general laws of Massachusetts. He carried on his business under the name of the Pang Suey Herb Company. Ninety per cent of his patients were white persons. He sold small amounts of tea and rice, but his real business was the practice of medicine, and these sales were a mere cover. The sale of herbs was in connection with the practice of medicine, that being the medicine dispensed by him. In November, 1916, on account of difficulties with the authorities, he arranged with a registered physician to come to his place of business on two days each week to examine new patients, who came on those days. The physician would make a diagnosis of these patients and turn them over to him or to his assistant, who would then prescribe for them according to Chinese methods. This service, rendered by the physician before the enactment of the statute prohibiting such service (St. 1917, c. 55, sec. 1), was for the purpose of protecting Joe Pang Suey and his assistant from criminal prosecution. The assistant, Joe Gouy Shong, who, in August, 1917, was appointed administrator of the estate of Joe Pang Suey, purchased of the servant who attended the latter in his last illness the business in question, which included the fixtures, furniture, herbs and alleged good will, although the servant had no authority to make the sale. Patients continued to come in the same numbers until 1922, when the business became less profitable. Many of those treated were former patients of the deceased. The widow and a son of the deceased offered to prove that the business of the deceased, which after his death was carried on by the administrator on his own account, was very profitable, netting him not less than $50,000, but this offer of proof was excluded by the probate court, when it allowed the account of the administrator.

On its findings, the probate court ruled that the business engaged in by the deceased, and after his death by the administrator, was unlawful and illegal; and that the administrator was not chargeable as administrator with any fees or emoluments received by him for his services as a so-called Chinese doctor, after the death of Joe Pang Suey. An examination of the evidence showed that the findings and rulings were well warranted. The evidence made it plain that both the deceased and his successor in business, the administrator, were engaged in the practice of medicine without any lawful authority and in violation of section 6, chapter 112, of the general laws of Massachusetts, and earlier statutes to the same effect. The employment of the physician during a portion of the time to examine and make a diagnosis of patients did not make the acts of the deceased or of the administrator lawful. The acts of each in prescribing and dealing out medicine were in violation of law. To prescribe and furnish medicines is to practice medicine within the meaning of the statute.

Whether there can be a good will attached to the practice of a physician after his death, which passes as an asset to his estate, or whether it is something purely personal, depending on the confidence reposed in his skill and ability, and after his death has no real intrinsic value, the court is not here called on to decide. It would be contrary to sound principles of the law to hold that there could be any good will connected with an illegal business. It would be equally subversive of well settled equitable precedents to compel an accounting for money so received, or to account for money obtained as the result of unlawful transactions.

The heirs of the estate of the deceased could have no greater right to an accounting for profits resulting from such a business than the deceased would have had in his lifetime if his unlawful business had been diverted by another. The contention of the widow and the son that they were entitled to secure the fruits of this business could not be sustained. A court of chancery will not lend its aid to compel an accounting for money received in the conduct of a business in violation of a statute enacted to protect the safety, health and welfare of the public. The fact that the heirs did not participate in the illegal business was not material. By reason of the failure of the administrator to account for profits received by him, the estate lost nothing which it was entitled to receive. Its assets could not be enhanced by gains obtained by the administrator while engaged in a criminal enterprise.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Colorado Springs, Sept. 13-18. Dr. Luther C. Peter, N. E. Cor. Chestnut and 20th Streets, Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Chicago, Sept. 20-22. Dr. James E. Davis, 111 Josephine Ave., Detroit, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 8-11. Dr. Richard Kovacs, 223 E. 68th Street, New York City, Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 21-23. Dr. F. B. Stephenson, 460 Metropolitan Building, Denver, Secretary.

Idaho State Medical Association, Sandpoint, Sept. 2-5. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, West Baden, Sept. 22-24. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Kentucky State Medical Association, Frankfort, Sept. 20-23. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Lansing, Sept. 14-17. Dr. F. C. Warnshuis, Powers Theatre Building, Grand Rapids, Secretary.

Missouri Valley Medical Society of the, Council Bluffs-Omaha, Sept. 15-17. Dr. Charles Wood Fassett, 115 East 31st St., Kansas City, Mo., Sec'y.

Nevada State Medical Association, Reno, Sept. 24-25. Dr. H. J. Brown, Gray-Reid Building, Reno, Secretary.

Wisconsin, State Medical Society of, Madison, Sept. 15-17. Mr. J. G. Crownhart, 153 Oneida Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

31: 763-914 (June) 1926

*Asthma in Children. I. Etiology. M. M. Peshkin, New York.—p. 763.
*Tuberculosis of Abdominal Lymph Nodes: Roentgen-Ray Diagnosis. E. C. Dunham and A. M. Smythe, New Haven, Conn.—p. 815.
*Arachnodactylia: Association with Congenital Heart Disease. R. K. Piper and E. Irvine-Jones, San Francisco.—p. 832.
*Diabetes in Infant. C. De Lange, Amsterdam.—p. 840.
*Fever in New-Born Infant. F. L. Adair and C. A. Stewart, Minneapolis.—p. 846.
*Prophylaxis of Varicella with Vesicle Fluid. R. M. Greenthal, Milwaukee.—p. 851.
*VII. Passage of B. Coli Through Kidney with Acute Staphylococcic Lesions. H. F. Helmholz and M. R. Bowers, Rochester, Minn.—p. 856.
Disease of Genito-Urinary Tract in Children. R. D. Herrold, Chicago.—p. 863.

Asthma in Children.—One hundred consecutive cases of asthma in children were tested by Peshkin in a routine manner with ninety-seven food, epidermal, pollen, bacterial and dust proteins by the cutaneous scratch method, and were observed for a period of from one to four years, the average being two and one-third years. Asthma is divided into three main groups, with their frequency of occurrence as follows: protein sensitive, 79 per cent; nonprotein sensitive, 18 per cent, and para-asthma (a new term), 3 per cent.

Tuberculosis of Abdominal Lymph Nodes.—In a group of 120 children with positive tuberculin tests, twenty-one, or 17 per cent, had roentgenographic evidence of calcified tuberculous lymph nodes. The shadows in the roentgenograms were of characteristic shape and appearance; in the lateral view they lay anterior to the vertebral column. They persisted in repeated plates and after evacuation of the intestinal contents. Dunham and Smythe state that the demonstration of calcified nodes in the abdomen is of value in establishing the locus of a tuberculous lesion and in helping to differentiate the condition from other acute abdominal conditions, such as appendicitis, sarcoma of the kidney, renal tuberculosis or stone in the kidney. By frequent repetition of abdominal plates, evidence should be obtained as to whether calcification is progressing or whether the calcified nodes are increasing or decreasing in size and number.

Arachnodactylia.—Arachnodactylia, or "spider digits," is a condition first described in 1896 by Marfan. It is characterized by the striking length and slenderness of the extremities, and differentiated from the gigantism of glandular dystrophy by the almost invariable accompaniment of congenital anomalies such as cardiac defects, webbing of the fingers, dislocation of the lenses, and many other conditions. Piper and Irvine-Jones give a detailed report of one case and review the literature.

Diabetes in Infant.—De Lange's patient died at the age of 2 years and 2 months. The onset of diabetes was at the age of 8 months.

Fever in New-Born Infant.—The study made by Adair and Stewart indicates that high external temperatures at least influence the incidence of fever among new-born babies. Additional factors apparently contributing to the condition are the subnormal fluid intake and excessive loss in weight, characteristic of babies having fever during the new-born period. The prompt subsidence of the fever on the liberal administration of fluids strongly suggests that dehydration is a very important causative factor.

Prophylaxis of Varicella.—The efficacy of varicella vesicle fluid in checking the spread of varicella was investigated by Greenthal. Thirty-six persons were vaccinated against varicella. There were nineteen "takes," sixteen negative reactions, and one patient left the hospital before the eighth day. No cases of varicella developed in those inoculated either successfully or unsuccessfully. The duration of the immunity induced by this procedure was less than eighteen months in one instance and more than six weeks in another. The use of varicella crusts to produce vaccine was not successful in the few instances when it was tried. Inoculation of guinea-pigs with varicella virus, using the coal tar method of Teague and Goodpasture, was unsuccessful.

Kidney: Filter for Bacteria.—The presence of staphylococcic lesions of the renal parenchyma and pelvis, according to Helmholz and Bowers, does not predispose to the rapid passage of colon bacilli into the urine. Active diuresis produced by sucrose does not force bacteria through the infected kidney in less than four hours. The colon bacillus introduced intravenously does not tend to become a secondary invader in the urinary tract in the presence of staphylococcic lesions of the kidney in the rabbit. Staphylococci and colon bacilli introduced simultaneously into the vein of a rabbit do not appear simultaneously in the urine.

American Journal of Hygiene, Baltimore

6: 319-505 (May) 1926

Chilomastix Gallinarum. W. C. Boeck and M. Tanabe, Boston.—p. 319.
Biologic Studies on Genus Strongyloides Grassi, 1879. J. H. Sandground, Boston.—p. 337.
Epidemiology of Scarlet Fever. A. S. Pope, Boston.—p. 389.
*Epidemiology of Malaria in Palestine. I. J. Kligler, Haifa, Syria.—p. 431.
Appraisal of National Health Administration. J. B. Grant, Peking.—p. 450.
*Epidemiologic Study of Pneumonia and Mode of Spread. M. J. Rosenau, L. D. Felton and R. M. Atwater, Boston.—p. 463.
*Oral Infection with Ancylostoma. S. Yokogawa and T. Oiso, Taihoku, Formosa.—p. 484.
*Serial Transmission of Chicken Tumors by Means of Injection of Leukocytes and Plasma. M. R. Lewis and H. B. Andervont, Baltimore.—p. 498.

Epidemiology of Malaria in Palestine.—An hypothesis is advanced by Kligler to explain the predominance of *Plasmodium vivax* in the spring and the early summer, and of *P. falciparum* in the late summer and early fall. It is argued that just as the different species of anopheles have different temperature optima, so the different species of parasites may also have different temperature optima.

Epidemiologic Study of Pneumonia.—Rosenau, Felton and Atwater put on record observations made in the winter of 1923-1924, in Boston, regarding the distribution of pneumococci among healthy persons, in an attempt to trace the transmission of the pneumococci between one case and the next. Of fourteen healthy carriers in the control group, not one gave a history on direct question which revealed the source of the fixed type organism present. In short, the channels of the spread of the pneumococcus are past finding out from the history of contacts usually available. These studies show that the distribution of pneumococcus types, according to the age of the carrier, is practically even. In other words, pneumococci occur in the throats of carriers without special relation to the age of the carrier.

Oral Infection with Ancylostoma.—Yokogawa and Oiso assert that, when the mature larvae of *Ancylostoma caninum* are given to guinea-pigs, rabbits or mice by mouth, most of them penetrate the wall of the alimentary canal and migrate to the lungs through the blood stream and the lymphatics, in the same way as following skin infections, and there go down again into the alimentary canal via the bronchi, trachea, larynx, pharynx and esophagus. Some of the larvae ingested by these animals may first migrate into the abdominal cavity, boring through the wall of the alimentary canal and from there penetrate the liver or into the pleural cavity and the lungs, and then take the migratory course, as above, to the alimentary tract. On the other hand, when the mature larvae of *Ancylostoma caninum* are given by mouth to the proper host, the dog, they generally do not travel in the body of the host, but grow in the alimentary canal without any such migration. The fact, therefore, that, in the case of skin

infections the larvae pass through the lungs, has no special connection with the digestive juices, but is a case of force majeure, the larvae being inevitably carried or guided there by the blood or lymph stream.

Experimental Transmission of Tumors by Blood.—In the experiments done by Lewis and Andervont, two tumors, the Rous sarcoma and the Carrel indol tumor, were passed from chicken to chicken by means of the blood. Either the plasma or the washed leukocytes of a chicken that had a well developed tumor were employed for transmission. In a few instances a transplant from a tumor, previously produced by means of the blood, was utilized. Every transplant, even though taken from a tumor after several passages by way of the blood, resulted in a tumor in both the Carrel and the Rous series. These tumors developed more rapidly than did those obtained from the injections of the blood. So far, there has been a higher percentage of tumors resulting from the injection of the leukocytes than from the plasma.

American Journal of Medical Sciences, Philadelphia

171: 625-780 (May) 1926

Advancement of Epidemiology Through Experiment. II. S. Flexner, New York.—p. 625.
*Relationship of Sulphemoglobinemia to Hepatic Deficiency. A. T. Todd, Bristol, England.—p. 635.
*Sickle-Cell Anemia. H. B. Anderson, Johnstown, Pa.—p. 641.
Hypertension. W. E. Post and E. J. Stieglitz, Chicago.—p. 648.
*Retrograde Capillary Pulsations in Heart Failure. C. S. Danzer, New York—p. 654.
*Blood Sugar in Status Thymicolymphaticus: Cause of Sudden Death. A. B. MacLean and R. C. Sullivan, New York.—p. 659.
*Familial Mediastinal Lymphogranuloma. A. Arkin, Vienna.—p. 669.
*Pathogenesis of Death from Burns. H. M. Greenwald and H. Eliasberg, New York.—p. 682.
Intra-Abdominal Pressure. I. Negative Intra-Abdominal Pressure as Normal Condition. G. W. Wagoner, Philadelphia.—p. 697.
Health Diagnosis in Children. W. R. P. Emerson, Boston.—p. 707.
Pneumopericardium from Radium Necrosis. J. Gottesman and A. J. Bendick, New York.—p. 715.
*Ephedrine in Asthma. W. S. Thomas, New York.—p. 719.
Cyanosis of Dementia Praecox: Gas Relationships of Blood. L. Segal and L. E. Hinsie, New York.—p. 727.
*Isolated Bilateral Paralysis of Glossopharyngeal Nerve Due to Cerebral Syphilis. B. J. Alpers, Philadelphia.—p. 740.

Sulphemoglobinemia from Use of Commercial Headache Powders.—A case of sulphemoglobinemia following prolonged use of commercial headache powders is described by Todd. The condition slowly cleared up on a diet that spared the liver. When proposals for discharge were made, a surreptitious use of the headache powders led to attacks of methemoglobinemia. No abnormal reducing substances were found in the blood, and the blood was found to fix sulphides no more readily than controls. Hepatic deficiency was proved present. Experimental injury to the livers of rabbits was followed by the appearance of the pigment in the blood; controls were negative. It is suggested that, among its many other functions, the liver detoxicates sulphur compounds ascending in the portal blood.

Sickle Cell Anemia.—The case reported by Anderson is unique in that it occurred in a negro boy born and reared in Pennsylvania, in that the color index was low (0.3) and in the fact that, during the first six weeks that the case was under observation in the hospital, it was impossible to demonstrate a progressive sickling of the fresh blood, and later, when the sickling phenomenon was noted, the red cells retained their bizarre shape for from seven to eight days.

Retrograde Capillary Pulse in Heart Failure.—A retrograde capillary pulse was observed by Danzer in a case of heart failure associated probably with tricuspid regurgitation. This was evident on direct macroscopic examination of the skin capillaries, as well as in the phenomena accompanying the determination of capillary blood pressure. Danzer suggests that the presence of a retrograde capillary pulse may be of value in the diagnosis of doubtful cases of tricuspid insufficiency or severe venous stasis.

Blood Sugar in Status Thymicolymphaticus.—In three cases of status thymicolymphaticus, MacLean and Sullivan found the blood sugar values to be low (42, 52 and 57 mg. per hundred cubic centimeter). In one case of suprarenal hemorrhage, a blood sugar of 25 mg. per hundred cubic centimeters was found. In six cases of convulsions produced by conditions other than status thymicolymphaticus, the authors found the blood sugar normal or increased above normal. In six cases of enlarged thymus shown by roentgenograms, they found five blood sugars within normal limits and one very slightly decreased. In six cases in which the blood sugar was determined within half an hour before death on patients with diseases other than status thymicolymphaticus, the values were normal or above normal. Acute suprarenal insufficiency is suggested as the immediate cause of sudden death in status thymicolymphaticus.

Familial Mediastinal Lymphogranuloma.—Arkin reports two cases of mediastinal lymphogranuloma, and one of "mediastinal tumor" probably also a lymphogranuloma, in one family, all three patients being men. The first patient died of mediastinal tumor in 1899, aged 34. His nephew (his brother's son) died in 1920, of mediastinal lymphogranuloma, aged 23. The son, aged 27, has been suffering since 1922 of a mediastinal lymphogranuloma. It developed twenty-three years after the death of the father. Arkin assumes a familial predisposition to mediastinal Hodgkin's disease in these cases.

Pathogenesis of Death from Burns.—Two clinical cases of burns are reported by Greenwald and Eliasberg with marked hypoglycemia. Experiments on ten rabbits were carried out to study the effects of superficial burns on the blood sugar content of the organs concerned with carbohydrate metabolism. In rabbits the cause of death may be divided into two stages: (*a*) Initial stage, due to shock, which is accompanied by a high blood sugar content due to hyperactivity of the suprarenals; (*b*) secondary stage, due to degenerative changes, particularly in the suprarenals. The administration of epinephrine is to be restricted only to the secondary stage of suprarenal exhaustion, and is contra-indicated in the primary stage.

Ephedrine in Asthma.—Ephedrine, administered by mouth to a series of twenty patients suffering from asthma, has given relief to all but three. Thomas regards it as an important substitute for epinephrine as a palliative remedy. In certain respects and in certain cases, the newer drug is to be preferred.

Cerebral Syphilis Causes Glossopharyngeal Paralysis.—A case is presented by Alpers of a white man, aged 63, who complained of trouble in swallowing solid food, who showed definite bilateral paralysis of the glossopharyngeal nerve with involvement of no other cranial nerves, and with preservation of taste over the posterior third of the tongue. There was evidence of syphilis clinically and serologically, and under specific treatment the paralysis disappeared and has not recurred. Alpers concludes that in all probability there was no involvement of the tractus solitarius, and there were probably definite lesions either in the dorsal nucleus or in the nucleus ambiguus.

American Journal of Ophthalmology, Chicago

9: 409-488 (June) 1926

Ocular Findings in Addison's Disease. A. L. Brown, Cincinnati.—p. 409.
Point Focal and Bifocal Lenses in Practice. A. Verwey, Durban, South Africa.—p. 410.
Detachment of Retina with Coloboma of Iris and Choroid. J. Komoto, Tokyo, Japan.—p. 414.
True Filial Teratoma and Cyst in Orbit of New-Born Child. J. A. Kearney, New York.—p. 416.
Expulsive Choroidal Hemorrhage After Cataract Extraction. H. V. Würdemann, Seattle.—p. 427.
Interstitial Keratitis. L. J. Goldbach, Baltimore.—p. 431.
Operation for Juvenile Cataract in Two Stages. G. H. Bell, New York.—p. 433.
Pericentral Folds in Descemet's Membrane, Following Parenchymatous Keratitis. R. V. Heydt, Chicago.—p. 435.
Vossius Ring Cataract. S. D. Durr, San Diego, Calif.—p. 436.
Microphthalmus, Miosis and Calcified Lens. J. J. Horton, Eagle Pass, Texas.—p. 437.

Annals of Clinical Medicine, Baltimore

4: 773-850 (April) 1926

Economic Problems of Internal Medicine. C. G. Jennings, Detroit.—p. 733.
Preparation and Practice in Medical Education. C. C. Little, Ann Arbor, Mich.—p. 781.

*Intestinal Origin of Pernicious Anemia. K. Faber, Copenhagen.—p. 788.
*Physiology of Pancreas. V. External Pancreatic Secretion. A. C. Ivy, Chicago.—p. 798.
Liver from Standpoint of Investigator, Physician and Surgeon. G. W. Crile, Cleveland.—p. 806.
*Pathology of Some Arterial Diseases. O. Klotz, Toronto.—p. 814.
Therapeutics of Arteriosclerosis and Essential Arterial Hypertension. A. R. Elliott, Chicago.—p. 829.

Intestinal Origin of Pernicious Anemia.—Faber reviews the available evidence which strengthens his belief that pernicious anemia has its origin in intestinal intoxication.

External Pancreatic Secretion.—Ivy is convinced that there is a cephalic phase of external pancreatic secretion, although an absolutely crucial experiment has not yet been performed. All experiments performed up to the present time have failed to indicate the existence of a gastric phase of external pancreatic secretion. Ivy and Farrell have been successful in transplanting the entire tail of the pancreas subcutaneously in the region of the mammary gland. Such a transplant secretes continuously a small amount of secretion and is stimulated by the injection of a meal. This proves unequivocally a humoral mechanism for pancreatic secretion. When tenth normal or one hundred and twentieth normal hydrochloric acid is applied to the mucosa of a Thiry fistula, or a subcutaneously transplanted loop of the jejunum, the pancreatic transplant secretes. This proves a hormone mechanism. Whether such a mechanism functions normally is discussed; and the opinion is expressed that it does function in normal digestion. When olive oil is applied to the mucosa of a Thiry fistula of the jejunum, the pancreatic transplant does not secrete; if so, very slightly. The neutralized digestive products of olive oil do stimulate when applied. These facts demonstrate that several mechanisms are concerned in the causation of the intestinal phase of external pancreatic secretion.

Pathology of Arteriosclerosis.—One of the most important features to recognize in connection with arteriosclerosis, Klotz states, is that its lesions are not of one quality alone but that there is quite a variety of processes that differ very essentially among themselves and which have a different origin. Physicians are prone to use the term "arteriosclerosis" carelessly in applying it to the scleroses of arteries in different portions of the body as if the lesions were all the same and had both a common manner of development and a common effect on the circulatory system. This fact must be appreciated by the clinician if he hopes to correlate his studies with those of the pathologist. Arteriosclerosis at times makes its appearance as a generalized reaction involving a great number of arteries of different parts but, on the other hand, it is much more common to find arteriosclerosis localized to a single system of vessels or to a group of vessels so that, though there may be an outstanding sclerosis of the arteries of one organ, those in another region are quite unaffected. Localized arteriosclerosis may be encountered in the arteries of the extremities at one time, or in the heart, the kidney or the brain, or various combinations of these may be encountered, but it is impossible to prophesy the presence of scleroses of hidden arteries of internal organs by the presence of hardened arteries in the periphery.

Archives of Dermatology and Syphilology, Chicago

13: 737-864 (June) 1926

Pemphigus: Combining Features of Lupus Erythematosus. F. E. Senear and B. Usher, Chicago.—p. 761.
Pathogenesis of Fox-Fordyce Disease. W. Pick, Prague, Czechoslovakia. —p. 782.
Fox-Fordyce Disease Associated with Hyperthyroidism. E. W. Netherton, Cleveland.—p. 794.
Cardiovascular Disease as Complication of Generalized Neurofibromatosis. G. F. Clark and E. G. Wakefield, Washington, D. C.—p. 806.
*Epidermomycosis of Sole Caused by Monilia and Yeast. M. Wachowiak and M. S. Fleisher, St. Louis.—p. 815.
Lichen Simplex of Scalp. A. W. Stillians, Chicago.—p. 819.
*Failure of Early Abortive Treatment of Syphilis. I. C. Sutton, Hollywood, Calif.—p. 822.

Epidermomycosis of Sole.—From two cases of epidermomycosis of the plantar surface which clinically were apparently identical, Wachowiak and Fleisher have been able to isolate different organisms in each case. In the one case they found a monilia, in the other an unidentified yeastlike organism, which may possibly be classed as *Cryptococcus*.

Failure of Early Abortive Treatment of Syphilis.—Immediately after exposure, Sutton's patient was given 0.45 Gm. of neo-arsphenamine intravenously with instructions to return the next day for another injection, which she did not do. Six weeks later, she returned with an early maculopapular syphilid over her body, a general glandular enlargement and a few superficial mucous membrane erosions in the mouth. No primary lesion was demonstrated, although the vagina, rectum and throat were searched.

Archives of Neurology and Psychiatry, Chicago

15: 675-826 (June) 1926

Story of Glossopharyngeal Nerve. C. L. Dana, New York.—p. 675.
Human Adult and Embryo Anterior Horn Cells: Comparison of Form in Relation to Concept of Neurobiotaxis. W. M. Kraus and A. Weil, New York.—p. 686.
Case of Cervicodorsal Spina Bifida Occulta with Trophic and Sensory Disturbances and Cervical Hypertrichosis. M. Gozzano, Rome.—p. 702.
*Etiology of Epidemic Hiccup (Singultus): Relation to Encephalitis. E. C. Rosenow, Rochester, Minn.—p. 712.
Case of Hydrophobia with Negri Bodies in Brain. H. R. Viets, Boston. —p. 735.
*Chemical Changes in Spinal Fluid in Meningitis: Lactic Acid Content. M. Osnato and J. A. Killian, New York.—p. 738.
Yellow Spinal Fluid Associated with Tumor of Brain. M. W. Comfort, Rochester, Minn.—p. 751.
Neuropathology. S. T. Orton, Iowa City.—p. 763.

Etiology of Epidemic Hiccup.—A streptococcus, alike in morphology and with similar cultural characters and having similar immunologic reactions, was isolated by Rosenow from the infected atrium in twenty additional cases of epidemic hiccup, and with each strain, spasms of the diaphragm or other muscles were produced in animals. The organism was isolated from these animals and characteristic symptoms again induced on inoculation. It was demonstrated in the lesions and proved absent elsewhere by microscopic examination of sections. Similar experiments, made with streptococci from cases of poliomyelitis and other diseases of the nervous system, from poliomyelitis contacts, from normal controls, and from patients that had recovered from hiccup, gave strikingly different results. The possibility of an accompanying filterable virus (in the usual meaning of that term) being the cause of the spasms was excluded by the successful reproduction of characteristic symptoms with some of the strains after many rapidly made subcultures with the dead streptococci, and with filtrates of active cultures, the symptoms in the case of filtrates beginning in from one to three hours after injection. The close relationship believed to exist between epidemic hiccup and epidemic encephalitis, and indicated by epidemiologic findings, receives much support in these experiments.

Significance of Spinal Fluid Lactic Acid Fluctuations.—An increase of the lactic acid of the spinal fluid and of the blood was found by Osnato and Killian in nephritis and epilepsy following the convulsions. In epilepsy, the spinal fluid after the convulsions gave figures for lactic acid exceeding those for the blood obtained at the same time. Spinal fluids obtained from cases of meningitis showed high figures for lactic acid. The source of this increased formation of the lactic acid appears to be the cellular metabolism. In some instances, no decrease was noted in the sugar in fluids in which the lactic acid was increased above normal; in others, however, no reaction for sugar was obtained. In no instance did the increase in lactic acid account for all the sugar lost.

Archives of Surgery, Chicago

12: 1105-1272 (June) 1926

*Renal Counterbalance. F. Hinman, San Francisco.—p. 1105.
Gastric Motility. III. Mechanism of Pylorus. E. Klein, New York. —p. 1224.
Twenty-Ninth Report of Progress in Orthopedic Surgery. R. B. Osgood et al., Boston.—p. 1255.

Renal Counterbalance.—It is impossible to abstract this paper by Hinman because of its great length. In the main, however, the work represents an attempt to establish the clinical practicability of renal counterbalance to renal surgery.

Atlantic Medical Journal, Harrisburg

29: 507-586 (May) 1926

Spirochetal Infections of Man. R. P. Strong, Boston.—p. 507.
Carcinoma of Lactating Breast. E. J. Klopp, Philadelphia.—p. 520.
Surgery in Breast Infections. A. E. Billings, Philadelphia.—p. 522.
Roentgen-Ray Treatment of Inoperable Breast Cancers and Postoperative Treatment. W. F. Manges, Philadelphia.—p. 524.
Benign Tumors of Breast. J. H. Gibbon, Philadelphia.—p. 526.
Fundamentals in Slit Lamp Microscopy. G. O. Ring, Philadelphia.—p. 528.
Crystalline Lens as Seen with Slit Lamp. A. J. Bedell, Albany, N. Y.—p. 531.
Slit Lamp Microscopy in Everyday Practice. L. C. Peter, Philadelphia.—p. 533.
Leiner's Disease. J. D. Stevenson, Beaver, Pa.—p. 535.
*Dehydration Fever. R. M. Tyson and F. F. Borzell, Philadelphia.—p. 536.
*Congenital Obstruction of Esophagus. H. C. Flood, Pittsburgh.—p. 537.
Hysteria in Child Following Appendectomy. P. Nicholson, Ardmore, Pa.—p. 538.
Radiotoxemia with Death Following Roentgen-Ray Treatment of Enlarged Thymus. A. M. Dannenberg, Philadelphia.—p. 539.
*Congenital Absence of Bones in Two Male Infants. H. H. Perlman and L. S. Cohen, Philadelphia.—p. 541.
Polyuria in Four Year Old Child. J. D. Iams, Pittsburgh.—p. 543.
*Malaria in Treatment of General Paralysis. R. F. L. Ridgway and E. M. Green, Harrisburg, Pa.—p. 544.

Dehydration Fever.—Tyson and Borzell report the case of an infant, aged 5 days, who manifested symptoms of an esophageal obstruction. Examination of the esophagus by means of a barium solution showed the presence of a pressure in the middle third, sufficient to cause some obstruction. Attempts at deglutition caused an attack of dyspnea, cyanosis and mild convulsions. Roentgenograms showed what appeared to be an enlarged lymph gland pressing on the middle third of the esophagus. One treatment of 120 kilovolts at 18 inches distance, with a 3 mm. aluminum filter, 5 milliamperes for two minutes, was given. Gavage feeding was resorted to. The breasts were pumped, and breast milk used as long as available. The fever subsided. Cyanosis and convulsions did not recur, and the baby seemed to thrive. Artificial food was necessary because of failure of the breast milk. Four days later, another fluoroscopic examination with a barium solution showed that the obstruction had disappeared. Another roentgen-ray treatment was given. Gavage feeding was discontinued, and bottle feeding of a modified cow's milk formula was given. The baby was able to swallow without any difficulty. On the fifteenth day, the baby again began to vomit. There was no dysphagia. A careful observation during a feeding showed a well formed and easily observed peristaltic wave in the upper part of the abdomen. A diagnosis of pylorospasm was made. Thick cereal feedings were given, preceded by atropine in appropriate doses. Vomiting was controlled satisfactorily, and the baby continued to thrive. It was necessary to continue the atropine for four months. When the child was 3 months old, the mother noticed a peculiar crowing sound on inspiration. The roentgen ray showed enlargement of the thymic gland. A series of four roentgen-ray treatments was given during the following four months. The symptoms of enlarged thymus ceased. The baby thrived, and weighed 24 pounds (10.9 Kg.) at the end of the first year.

Congenital Obstruction of Esophagus.—The case reported by Flood belongs in the group showing defective development of the esophagus, with atresia and tracheal communication, accompanied by anomalous origin of the great vessels of the heart. The pulmonary artery, after giving off two branches, one to each lung, continued upward and a little outward, forming an arch, and then continued downward as the aorta. It had an opening for the vertebral arteries. It was quite a large vessel, as large as the normal infant aorta. The aorta proper emerged as a normal vessel, extended upward for a distance of 2.5 cm., where it bifurcated, forming the common carotid, right and left. Just beneath the right common carotid was a branch, forming the left subclavian. The connection between the aorta and the pulmonary vessel—the ductus arteriosis—was patulous. A small nodule noted in the large curvature of the stomach, on microscopic section, proved to be a piece of pancreatic tissue embedded in the wall of the stomach.

Congenital Absence of Bones.—Perlman and Cohen cite two cases; one was a congenital absence of the sternum and the other the congenital absence of the left tibia and fibula.

Malarial Treatment of General Paralysis.—Ridgway and Green report thirty-four patients suffering from general paralysis who were treated by inoculation with blood from one having malaria of the tertian type. Twenty-six of these patients recovered from the inoculated disease; seven died, and one failed to become infected. Of the twenty-six patients, five were not benefited by the treatment; nine were improved in greater or less degree, and twelve exhibited complete remissions. Seventeen of the number have been paroled from the hospital, and sixteen are still at home, many of them having reengaged in their former occupations. The results obtained in the series of cases prove that there may be no correspondence between the mental improvement and the changes in the physical signs of the disease nor in the serologic picture. Several of those manifesting complete remissions exhibited no favorable modifications in these respects. In only a small proportion of the cases did the Wassermann tests of the blood and the spinal fluid show changes which could be attributed to the malarial process. While physical signs were favorably modified in a number of instances, in no case did they all show a return to the normal.

Boston Medical and Surgical Journal

194: 1013-1056 (June 3) 1926

Old Lamps for New. W. W. Chipman, Montreal.—p. 1013.
Harelip and Cleft Palate. W. E. Ladd, Boston.—p. 1016.
Pelvic Inflammation in Women. I. H. Noyes, Providence, R. I.—p. 1025.
Use of Milk Injections in Pelvic Inflammation. J. Champlin, Jr., Westerly, R. I.—p. 1029.
Thermotherapy in Treatment of Pelvic Inflammation. W. H. Magill, Providence, R. I.—p. 1031.
Anaerobic Infection: Process. N. A. Dayton, Wrentham, Mass.—p. 1032.
Abuse of Rest in Cardiac Therapy. W. D. Reid, Boston.—p. 1039.

194: 1057-1104 (June 10) 1926

Educational Requirements for Twentieth Century Practice. C. F. Painter, Boston.—p. 1057.
Value of Iodine in Surgical Treatment of Exophthalmic Goiter. E. P. Richardson, Boston.—p. 1066.
*Tumor of Liver with Metastases in Heart and Peritoneum. S. L. Warren, Rochester, N. Y.—p. 1071.

Tumor of Liver with Metastases.—Warren relates the history of a patient, with an atypical history and an unusual area of pain, who was almost classified among the psychoneuroses, when a biopsy of what was apparently a fibroma of the skin disclosed the presence of a malignant tumor. Necropsy four months later showed a soft, reddish-black cellular tumor of the liver with globular metastases to the heart, pleura, the peritoneum along the mesenteric attachments of the intestine, the kidney, pancreas, spleen, ribs and several subcutaneous regions. Microscopically, the biopsy showed cells somewhat differentiated into blood vessel formation, while the necropsy study showed almost a complete loss of cell differentiation with very little connective tissue stroma, and the formation of nested cells, resembling nested Petri dishes, one inside the other.

Canadian Medical Association Journal, Montreal

16: 487-626 (May) 1926

Diagnosis and Treatment of Heart Disease. T. F. Cotton, London.—p. 487.
Cardiac and Renal Disease. I. M. Rabinowitch, Montreal.—p. 492.
*Classification of Diarrheas: Treatment. R. D. Rudolf, London.—p. 501.
Medical Aspects of Diseases of Large Bowel. A. H. Gordon, Montreal.—p. 505.
Differential Diagnosis of Upper Gastro-Intestinal Lesions. R. R. Graham, Toronto.—p. 508.
Management of Gastric and Duodenal Ulcer. D. C. Balfour, Rochester, Minn.—p. 516.
Etiology of Malignant Neoplasms. J. Loudon, J. M. McCormack and N. J. Howard, Toronto.—p. 522.
*Blood Changes in Rabbits Resembling Those in Pernicious Anemia Accompanying B. Welchii Infections. G. B. Reed, J. H. Orr and C. H. Burleigh, Kingston.—p. 525.
Tuberculosis of Tongue: Four Cases. C. K. P. Henry, Montreal.—p. 531.
Lung Expansion After Acute Empyema. K. D. Panton, Vancouver, B. C.—p. 534.
*Case of Chronic Nephritis Treated with Collip's Parathyroid Extract. E. H. Mason, Montreal.—p. 538.

Case of Status Epilepticus (Traumatica): Operation; Recovery. H. M. Robertson, Victoria, B. C.—p. 541.
Treatment of Diabetes Mellitus, With and Without Insulin. G. G. Duncan, Morristown, N. J.—p. 544.
Pyelitis in Infancy: Pathologic Study. B. Chown, Winnipeg.—p. 549.
*Control of Arsphenamine Treatment by Liver Function Tests. H. A. Dixon, W. R. Campbell and M. I. Hanna, Toronto.—p. 551.
Purpura with Intense Abdominal Pain as Late Complication of Scarlet Fever. R. Smith and T. A. Bertram, Dundas, Ont.—p. 555.
Treatment of Incomplete Abortion. E. Percival, Montreal.—p. 557.
Sudden Death in Status Lymphaticus. J. Miller, Kingston.—p. 559.
Rhinoplasty with Ivory Transplant. A. E. Lundon, Montreal.—p. 561.
Syphilitic Periostitis of Cervical Vertebra and Right Clavicle. L. C. Montgomery, Montreal.—p. 563.
Late Decompression of Lumbar Cord Following Injury. W. O. Stevenson, Hamilton.—p. 563.
Splenectomy. F. G. Finley, Montreal.—p. 565.

Classification of Diarrheas.—Diarrheas are classed by Rudolf as high, middle or lower, depending on the portion of the tract that is at fault. Etiologically, diarrheas may be classed as nervous, purgative or organic. The treatment of the nervous type consists chiefly of psychic therapy, with the use of nerve sedatives; the treatment of the purgative type, by medicinal purgatives to get rid of the irritating contents of the bowel that are the cause of the trouble. The medicinal treatment of the organic forms is likely to be more difficult and consists in the use of protectives and astringents and often of opium in some form. When the condition is in the lowest portion of the tract, much of the therapy is best conducted from below. The treatment of mucous colitis is chiefly that of the general nervous condition, although local therapy has its place.

Welch Bacillus Infections with Blood Changes.—Reed, Orr and Burleigh show that a highly virulent strain of *B. welchii* may produce chronic or acute infection in rabbits depending on the age of the culture used. Rabbits suffering from acute or chronic infection with *B. welchii* develop a profound anemia characterized by a decrease in red cell numbers without a corresponding decrease in hemoglobin and by conspicuous anisocytosis. Quantitative examination of the degree of anisocytosis shows that it resembles that of pernicious anemia in man.

Parathyroid Extract in Chronic Nephritis.—A case of chronic nephritis, with acute depression of renal function, treated by parathyroid extract is reported by Mason. Coincidently with the administration of the parathyroid extract, the serum calcium returned to its normal level with a remarkable readjustment of the altered blood chemical determinations. It is suggested that the parathyroid extract functioned through causing an increased mobilization of calcium from the body's depots.

Control of Arsphenamine Treatment by Liver Function Tests.—Dixon et al. aver that the van den Bergh test has revealed additional points of interest in the pathology and treatment of arsphenamine intoxication and represents a distinct advance in its control. Incapacitating illness and, at times, permanent injury to the liver results from the use of arsphenamine in the treatment of syphilis. The van den Bergh reaction can be used to diagnose the early stages of injury while the patient is still in the stage of latent jaundice and while suitable measures can be taken to minimize the injury. It is of value also in the control of the more severe stages of arsphenamine jaundice and liver atrophy. The authors contend that arsphenamine treatment without adequate laboratory check on the injury induced by its use is quite as, or even more, unjustifiable than treatment without the Wassermann reaction or other laboratory control of the treatment of the primary disease.

Journal of Bacteriology, Baltimore

11: 305-392 (May) 1926

Blood Agar Plate for Spore Forming Anaerobes. L. Thompson, Rochester, Minn.—p. 305.
Effect of Lactic Acid Bacteria on Acetone-Butyl Alcohol Fermentation. E. B. Fred, W. H. Peterson and M. Mulvania, Madison, Wis.—p. 323.
Dye Bacteriostasis. E. W. Stearn and A. E. Stearn, Pasadena, Calif.—p. 345.
Cellobiase as Aid in Differentiation of Members of Colon-Aerogenes Group of Bacteria. H. N. Jones and L. E. Wise, New York.—p. 359.
Electrophoretic Migration of Various Types of Vegetable Cells. C.-E. A. Winslow and M. F. Upton, New Haven, Conn.—p. 367.

Journal of Experimental Medicine, Baltimore

43: 725-884 (June 1) 1926

Geographic Distribution of Spontaneous Encephalitis in Rabbits. E. V. Cowdry, New York.—p. 725.
Organ Weights of Normal Rabbits. II. W. H. Brown, L. Pearce and C. M. Van Allen, New York.—p. 733.
Regeneration of Bacteriophage. II. Influence of Oxygen on Behavior of B. Coli Toward Lytic Principle. G. Shwartzman, New York.—p. 743.
Relation of Biliary Infections to Genesis and Excretion of Urobilin. P. D. McMaster and R. Elman, New York.—p. 753.
Effect of Certain Toxic Substances in Bacterial Cultures on Movement of Intestines. I. B. Paratyphosus B. E. E. Ecker and A. Rademaekers, Cleveland.—p. 785.
Rôle of Reticulo-Endothelial System in Immunity. C. W. Jungeblut and J. A. Berlot, Albany, N. Y.—p. 797.
*Melanoma of Eye in Syphilitic Rabbit. W. H. Brown and L. Pearce, New York.—p. 807.
*Cultivation of Granules of Vaccinia Virus. E. C. Craciun and E. H. Oppenheimer, Baltimore.—p. 815.
Desquamated Endothelial Cells (Clasmatocytes) in Normal Mammalian Blood. F. R. Sabin and C. A. Doan, New York.—p. 823.
Fragmentation of Red Blood Cells: Phagocytosis of Fragments by Desquamated Endothelial Cells of Blood Stream. C. A. Doan and F. R. Sabin, New York.—p. 839.
*Etiology of Oroya Fever. I. Cultivation of Bartonella Bacilliformis. H. Noguchi and T. S. Battistini, New York.—p. 851.

Relation of Melanoma and Syphilis.—Brown and Pearce noted the development of a melanotic tumor in a defective eye of a syphilitic rabbit following repeated genital inoculations with *Spirochaeta pallida*. The appearance of the tumor coincided with the development of a syphilitic lesion in the same eye, suggesting a relation between the occurrence of the two lesions.

Cultivation of Vaccinia Virus Granules.—A technic is described by Cracium and Oppenheimer whereby vaccinia "granules" are separated from all other material of glycerolated vaccinia calf lymph and cultivated in vitro with embryonic tissues. These "granules" remain alive, as tested by rabbit corneal inoculation, for as long as seventy-one days, when grown in connection with growing tissue; they fail to remain potent if cultivated with dying cells, showing in this way the same characteristics as whole vaccine virus. The potency of the "granules" increases with the age of the culture under the first mentioned conditions. The fluid part of the vaccinia lymph which remains after the removal of all "granules" is impotent under all conditions.

Etiology of Oroya Fever.—A pure culture of a microorganism resembling in morphology and pathogenic action *Bartonella bacilliformis* has been obtained by Noguchi and Battistini from blood taken during life from a case of oroya fever which ended fatally. The blood taken at Lima and passed directly into a citrate solution and transported to New York at refrigerator temperature yielded positive cultures twenty-eight days after its withdrawal from the patient. The inoculation of cultures of *Bartonella bacilliformis* into *Macacus rhesus* produced infection and gave rise to effects which differ with the mode of inoculation. The intravenous injection of the culture into young macaques induces a prolonged, irregularly remittent fever. The organism can be cultivated from the blood over a long period, and it has been detected within the red corpuscles of the monkeys, reproducing the precise appearances observed in human cases of oroya fever. The intradermal injection of the culture into the eyebrow of young macaques gives rise to nodular formations rich in new blood vessels and showing the bacilliform organism within the endothelial cells. From the experimentally induced nodules, cultures of the organism are readily recovered.

Journal of Laboratory and Clinical Medicine, St. Louis

11: 707-808 (May) 1926

*Exsanguination-Transfusion in Treatment of Mercuric Chloride Poisoning. C. C. Haskell, J. R. Hamilton and W. C. Henderson, Richmond, Va.—p. 707.
*Nutrition in Tuberculosis. II. Experimental Tuberculosis: Influence of Vitamin Deficient Diets Thereon. M. I. Smith and E. G. Hendrick, Washington, D. C.—p. 712.
*Carcinoma of Stomach with Eosinophilia. E. Weiss, Chicago.—p. 733.
Standardized Method of Estimating and Reporting Hemoglobin Values. J. W. Lindsay, E. C. Rice and M. A. Selinger, Washington, D. C.—p. 737.

Anisocytosis and Increased Red Blood Cell Volume with Little or No Anemia. M. Warren, Portland, Me.—p. 743.
Bronchial Spirochetosis. T. L. Ramsey, Toledo, Ohio.—p. 751.
Pneumococcus Antibody Solution. F. M. Huntoon, Glenolden, Pa.—p. 759.
Probable Rôle of Bacteriophage in Streptococcus Infections. L. O. Dutton, Memphis, Tenn.—p. 763.

Exsanguination-Transfusion Treatment of Mercuric Chloride Poisoning.—Haskell and his associates believe that the results of their experiments on dogs prove that the exsanguination-transfusion method of treating mercuric chloride poisoning is distinctly injurious.

Experimental Tuberculosis and Vitamin Deficient Diet.—Experimental tuberculous infection in the albino rat is described by Smith and Hendricks. The albino rat, experimentally infected with *B. tuberculosis*, can be rendered susceptible to tuberculin shock by withholding fat soluble vitamin A from its diet. Experiments are described indicating that the tubercle infected rat deteriorates more rapidly than the noninfected control when maintained on a diet of low biologic value and low in fat soluble A. Liberal allowance of fat soluble A appears to afford protection against the early deterioration. It is not certain whether this indicates a lowered resistance in the albino rat to tubercle infection or an increased demand for vitamin A. The increased susceptibility to tuberculin shock of the infected vitamin A deficient rat appears to offer evidence in favor of the former view.

Carcinoma of Stomach with High Eosinophilia.—Weiss claims that his case is the first one reported of carcinoma primary in the stomach with high eosinophilia (31.8 per cent). Only six cases of carcinoma with such high eosinophilia have been reported in the literature. In none of the previous cases was the tumor located in the stomach. In one of these cases, an eosinophilia was found in the surrounding necrotic tissue and a direct connection was assumed between the necrotic tumor tissue (toxins) and the eosinophil infiltration. In the case under discussion, no eosinophilia was found in the tumor or surrounding tissue. A decrease of eosinophils, after the removal of the tumor, was observed (4.1 per cent). A few weeks after the operation the eosinophils showed again a rise (31.8 per cent), exceeding the eosinophilia previous to the operation (24.2 per cent); whether this postoperative eosinophilia was caused through metastatic growth of the tumor could not be determined. Neither the tumor extract nor the blood of the patient could produce eosinophilia in animals. Not the slightest phagocytic properties of the eosinophils, even in the presence of immune serum, could be detected.

Kansas Medical Society Journal, Topeka

26: 137-172 (May) 1926

*Lactic Acid Milk as Additional Food for Young Infants. F. C. Neff and T. G. Dillon, Kansas City, Mo.—p. 137.
*Acidified Milk in Infant Feeding. H. L. Dwyer, Kansas City, Mo.—p. 140.
Selection of Cases of Pulmonary Tuberculosis for Artificial Pneumothorax. S. H. Snider, Kansas City, Mo.—p. 142.
Ocular Disturbance from Exposure to Infra Red and Ultraviolet Rays. J. W. McKee, Kansas City, Mo.—p. 143.
Some Factors Other Than Specific Drugs in Treatment of Neurosyphilis. A. L. Skoog, Kansas City, Mo.—p. 146.
*Aortic Regurgitation in Young Adults. R. C. Davis, Kansas City, Mo.—p. 149.
*Relation of Nasal Disease to Bronchial Asthma. L. Clendening, Kansas City, Mo.—p. 154.
Fibrosis of Uterine Muscle. R. D. Irland, Kansas City, Mo.—p. 156.
*Abdominal Actinomycosis. F. C. Helwig, Kansas City, Mo.—p. 157.
Lingual Thyroid. M. J. Owens, Kansas City, Mo.—p. 160.
Some Complications of Diabetes Mellitus. R. H. Major, Kansas City, Mo.—p. 162.
Etiologic Factors in Mitral Stenosis: Two Cases. P. T. Bohan, Kansas City, Mo.—p. 165.

Lactic Acid Milk as Infant's Food.—The fifty cases reported by Neff and Dillon indicate that newly born infants, as a rule, do gain better when fed additional food in the form of lactic acid milk until sufficient breast milk is supplied. The value in this method lies not in the nature of the acid in the milk, but in the fact that the milk is rendered more digestible by being sour, and more food can be handled. Milk soured in other ways is probably just as good; in fact, for many years the authors have not infrequently used buttermilk when additional food is needed for the newly born. The usual formula has been: Holstein milk (whole), 8 ounces; lactic acid, U. S. P., 15 drops; water, 8 ounces; dark corn syrup, 1 ounce. The milk is boiled gently for five minutes, the scum removed and to each 8 ounces of the cooled milk is added 15 drops of the acid, stirring the milk when each drop is added. This formula is given to infants only during the first three or four days of their life or until the breast milk is established.

Acidified Milk in Infant Feeding.—By the addition of either lactic, hydrochloric, acetic or citric acid, Dwyer says, cow's milk is rendered more digestible, can be fed in greater concentration and thereby is useful in correcting digestive disorders and marasmus.

Aortic Regurgitation of Nonsyphilitic Origin.—Seven cases of aortic insufficiency are reported by Davis, none of which was caused by syphilis. Three electrocardiograms are shown, one of which shows very little change. There is a prolonged P-R interval in the other two. Two show left ventricular predominance. In one case, there was definite myocardial change as evidenced by the inversion of the T waves in leads II and III. Davis' experience is that nonsyphilitic endocarditis is the most frequent cause of aortic insufficiency in young adults.

Relation of Nasal Disease to Asthma.—Clendening recognizes a form of asthma, associated with and probably caused by chronic nasal disease. Attempts to prove these patients hypersensitive to foreign proteins have not been successful. The relationship between the nasal condition and the bronchial condition is not reflex, but is probably the result of direct infection from one to the other. Removal of the nasal infection is the first step in treatment.

Abdominal Actinomycosis.—A case of abdominal actinomycosis is reported by Helwig which started in the mucosa of the hepatic flexure of the colon and extended through the liver to the spleen, then up through the diaphragm into the lower lobe of the left lung without giving symptoms until the diaphragmatic involvement had taken place. The canary colored granules were demonstrated in the tissues before death, and the typical progressive involvement was seen at necropsy.

Medical Journal and Record, New York

123: 783-850 (June 16) 1926

*Relation of Dental Infection to Systemic Disease. R. L. Haden, Kansas City, Mo.—p. 783.
Placing of Thoracoplastic Cases in General Surgical Wards and Their Medical Care Thereafter. S. A. Knopf, New York.—p. 787.
Our Social Evasion. T. Burrow, Baltimore.—p. 793.
Syphilis in Its Relation to Eye Conditions. G. H. Bell, New York.—p. 796.
Relationship of Ophthalmoscopic Pictures to Arterial Disease. S. A. Agatston, New York.—p. 799.
Idiopathic Paralysis Agitans in Man Aged Thirty-Five. T. C. Fong, Washington, D. C.—p. 800.
Epithelioma of Lip Treated by Radiation. A. W. Jacobs, New York.—p. 803.
Cystoscope as Aid to Diagnosis. J. Schwartz, New York.—p. 804.
Roentgen Rays in Treatment of Diseases of Skin and Other Pathologic Conditions. S. Feldman, New York.—p. 805.
*Influence of Cervical Sympathectomy on Angina Pectoris. H. Lilienthal, New York.—p. 809.
Mitral Stenosis. M. Gordon, New York.—p. 811.
*Auricular Flutter. L. F. Bishop, New York.—p. 814.
*Direct Treatment of Heart Failure. E. E. Cornwall, New York.—p. 816.
Pupil as Index of Activity in Cardiac Lesions. J. Byrne, New York.—p. 820.
Cardiazol, Heart Stimulant. G. L. Waldbott, Detroit.—p. 821.
*Suppuration of Nasal Accessory Sinuses as Portal of Entry of Infection in Diseases of Heart. W. Spielberg, New York.—p. 822.

Dental Infection and Systemic Disease.—Haden reports cases of duodenal and gastric ulcer, acute myocarditis, recurrent iritis, chronic pyelonephritis, subacute thyroiditis and acute facial paralysis as instances of systemic disturbances due to chronic periapical dental disease. Proof of the relationship between these conditions was obtained by animal experimentation.

Cervical Sympathectomy.—In the surgical treatment of angina pectoris, Lilienthal says, other things being equal, the procedure involving the least danger should be tried first, even though it consists of the mere blocking of painful sen-

sations. An example of this therapy would be the alcohol blocking of the upper thoracic sensitive branches without incision. The question of operation must be decided in each instance by the cardiologist, the surgeon and the patient.

Auricular Flutter.—On account of its rather grave significance in most cases, Bishop says it is important to recognize auricular flutter when present so that proper treatment may be instituted without delay. A positive diagnosis can be made only by the electrocardiogram but in a person suffering from cardiac failure with an extremely rapid though regular ventricular rhythm, the possibilities of the presence of auricular flutter should always be considered. A typical example is reported, showing the importance of early diagnosis and treatment as a life saving measure.

Use of Digitalis in Heart Failure.—As a guide to the use of digitalis in heart failure, Cornwall asserts that laboratory experimentation, especially on animals, cannot altogether be trusted, as Mackenzie has said, because pathologic changes in the human organism can modify the effects of the drug and discredit inferences from such experimentation; clinical experience must largely determine its practical use.

Sinus Infections and Heart Disease.—Study of three cases has convinced Spielberg that the nasal sinuses do play an important rôle in cardiac pathology, particularly when definite pathology (in the nasal sinuses) can be demonstrated. The examination of a patient suffering from heart trouble should not be considered complete without a roentgen-ray examination of the nasal sinuses, and an interpretation of the latter made by a competent rhinologist.

Ohio State Medical Journal, Columbus

22: 474-568 (June 1) 1926

Relative Value of Cholecystography in Diagnosis of Abdominal Pathology. J. J. Coons, Columbus.—p. 493.
Practical Blood Chemistry. C. T. Way, Cleveland.—p. 499.
*Retention of Perfectly Formed Fetus in Abdominal Cavity over Half Century. E. J. McCormick, Toledo.—p. 501.
Interpretation of Behavior in Hysteria. C. C. Wholey, Pittsburgh.—p. 506.

Retention of Fetus in Abdominal Cavity for Fifty Years.—McCormick reports the case of a woman, aged 73, who came under observation because of a sudden attack of syncope accompanied by pain in the abdomen and general weakness. There was no paralysis, no loss of consciousness, no rise of temperature, and no elevation of pulse. Aside from the senile and cardiovascular changes which were responsible for the patient's condition at this time, there was a hard "fibroid like" mass filling the lower part of the abdomen and particularly prominent on the right side. It was not movable, and palpation caused no pain. Symptomatic treatment was instituted, but the patient died the day following admission. A necropsy was performed. The abdominal findings are of marked interest. A tumor filled the entire lower part of the abdomen and extended midway between the umbilicus and the ensiform cartilage. The omentum and transverse colon were adherent and completely enveloped the tumor on its anterior and lateral aspects. The tumor was adherent to the fimbriated end of the right tube. There was no apparent definite blood supply to the mass. The mass was dense and hard, the outline resembling a fetus. The uterus was small and atrophied. After superficial fibrous attachments had been removed, the appearance of an encapsulated fetus was clearly seen. The fetus was in the typical position as generally found in utero. The capsule was formed by the placenta and membranes with lime salts deposits. There was a history of a pregnancy fifty years previously. At nine months the patient felt labor coming on. There was a discharge of water from the uterus and also severe bleeding. The doctor in charge was with the patient all night watching for the baby to arrive, but there was no birth and the doctor thought that the baby had died. He made an examination and found no uterine pregnancy. Menstruation was never normal following this pregnancy. The patient was afterward examined by a surgeon who made a diagnosis of tumor or ovarian pregnancy, but advised that no operation be done as long as her health was good.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

43: 73-126 (Summer) 1926

Uveo-Parotitic Paralysis. G. Parker.—p. 73.
Polyneuritis Preceded by Inflammation of Parotid, Lachrimal and Mammary Glands. B. Rogers and J. H. Bodman.—p. 84.
Operative Treatment of Meningitis. E. Watson-Williams.—p. 91.
Rigid Rest in Rheumatic Carditis. J. A. Nixon.—p. 96.

British Journal of Dermatology and Syphilis, London

38: 185-230 (May) 1926

Granuloma Fungoides (Tumeurs d'Emblée Type). H. C. Semon,—p. 185.
Pompholyx Eruption Due to Iodine. R. T. Brain.—p. 191.

38: 231-272 (June) 1926

Case of Espundia. F. P. Wilson and J. F. D. Shrewsbury.—p. 231.
Xeroderma Pigmentosum (Kaposi). M. Per.—p. 241.

British Journal of Ophthalmology, London

10: 241-304 (May) 1926

John Dalrymple, F. R. S., 1803-1852. R. R. James.—p. 241.
Trachoma in Palestine. N. Shimkin.—p. 247.
New Anatomic Notation of Visual Field. M. U. Troncoso.—p. 280.

10: 305-368 (June) 1926

Trigeminal Nerve and Its Ocular Lesions. L. Paton.—p. 305.

British Medical Journal, London

1: 929-976 (June 5) 1926

Why Hygiene Pays. A. Balfour.—p. 929.
Recent Advances in Surgery of Chest. H. S. Souttar.—p. 933.
Gastric Diagnosis. L. R. Broster.—p. 936.
*Method of Treating Asthma by Radiation. S. G. Scott.—p. 939.
Hematoma in Abdominal Wall Simulating Pelvic New Growth. W. E. Fothergill.—p. 941.
Rectal Anesthesia. R. B. Coleman.—p. 942.
Serous Meningitis: Repeated Lumbar Puncture; Recovery. D. M. Anderson.—p. 943.
Treatment of Yaws by Novarsenobillon. J. C. Franklin.—p. 943.
Acute Intussusception Successfully Treated by Rectal Inflation. B. S. Hollick.—p. 943.
Ocular Malformation. C. F. Ashby.—p. 944.
Twisted Ovarian Pedicle in Child. J. Morris.—p. 944.
Gangrene in New-Born. L. W. Hefferman.—p. 944.

Treating Asthma by Roentgen-Ray Bath.—Scott reports good results from the use of a roentgen-ray "bath"—that is, irradiation of the entire trunk and not only the chest, in the treatment of asthma. This point is stressed: the use of small doses—not more than 10 X filtered through 3 mm. of aluminum.

Indian Journal of Medical Research, Calcutta

13: 751-1034 (April) 1926

Blood Sugar in Indians. II. Normal Renal Threshold. U. N. Brahmachari.—p. 751.
Relative Susceptibility of Indian Milch Cattle to Tuberculosis. M. B. Soparkar.—p. 755.
Biologic Assay of Digitalis Preparations in Tropics. R. N. Chopra and P. De.—p. 781.
Cessation of Multiplication of B. Typhosus in Broth Culture. J. W. Cornwall and W. A. Beer.—p. 789.
Assessment of Infectivity of Rabies Fixed Virus by Means of Albino Rats. J. W. Cornwall and W. A. Beer.—p. 803.
Effect of Etherized Normal Brain Substance Injected Subcutaneously into Rabbits. J. W. Cornwall and W. A. Beer.—p. 807.
*Effects of Excessive Ingestion of Lime on Thyroid: Influence of Iodine in Counteracting Them. R. McCarrison.—p. 817.
Potency of Haffkine's Plague Prophylactic. B. P. B. Naidu, R. H. Malone and C. R. Avari.—p. 823.
Keeping Properties of Carbolized Antirabic Virus. T. H. Gloster, J. Taylor and K. N. Menton.—p. 835.
Development of Male and Female Hypopygium of Phlebotomus. S. R. Christophers and P. J. Barraud.—p. 853.
A. (Myzomyia) Pattoni, New Anopheles from Shan-Tung, North China. S. R. Christophers.—p. 871.
Effect of Heat on Rabies Vaccine. I. W. D. H. Stevenson, H. H. King, M. J. Nicholas and B. N. Lahiri.—p. 879.
Id. II. H. H. King, M. J. Nicholas and B. N. Lahiri.—p. 885.
*Malaria. IV. Sexual Forms of Plasmodium Falciparum in Peripheral Circulation. J. A. Sinton.—p. 895.
Duration of Protection After Prophylactic Inoculation of Vaccine Sterilized by Different Methods. K. R. K. Iyengar.—p. 917.
Feeding and Refeeding Sandflies (Phlebotomus Argentipes) for Second and Third Time. H. E. Shortt, P. J. Barraud and A. C. Craighead.—p. 923.
Breeding of Sandflies in Assam. H. E. Shortt, P. J. Barraud and C. S. Swaminath.—p. 943.

Life History and Morphology of Herpetomonas Donovani in Sandfly. H. E. Shortt, P. J. Barraud and A. C. Craighead.—p. 947.
Sandflies and Sandfly Fever in Peshawar District. T. C. M. Young, A. E. Richmond and G. R. Brendish.—p. 961.

Effects of Excessive Lime Feeding on Thyroid.—The effect on the thyroid gland of pigeons and rats of the excessive ingestion of lime, for a period of eight and a half months, was to cause in certain individuals an increase in size of the organ of approximately 50 per cent. McCarrison asserts that this increase was due to the abnormal accumulation of colloid material in the vesicles of the gland. There was no associated hyperplasia of the organ. The undue accumulation of colloid was preventable by increasing the intake of iodine proportionately to the excessive ingestion of lime. A balanced adjustment of lime and iodine in the diet would thus appear to be necessary for the normal storage and resorption of colloid material by the thyroid. This observation would appear to have a bearing on the pathogenesis of "colloid goiter" in man.

Development of Malaria Crescents.—The development of crescents, Sinton says, appears to be associated with a lowered immunity of the body, produced by the "toxins" of the disease, and it is tentatively suggested that a change in the reaction of the pulp of the bone marrow and spleen may be the immediate stimulus which acts on the asexual forms to cause the development of crescents from them. No marked correlation could be found between the degree of splenic enlargement and the occurrence of crescents in the peripheral blood. The duration of the life of a crescent may possibly be as long as from forty to fifty days in the peripheral blood, but the great majority of them disappear within three weeks after the asexual cycle has been destroyed. The number of crescent carriers found after the quinine and alkali treatment was less than after any of the other treatments tried. The reduction of crescent carriers by efficient treatment and the prevention of such carriers conveying the infection to mosquitoes are important factors in all antimalarial campaigns.

Indian Medical Gazette, Calcutta

61: 209-260 (May) 1926

Propagation of Hookworm Infections: Cockroaches. A. C. Chandler.—p. 209.
Variations in Potency of Digitalis Preparations in Tropics. II. R. N. Chopra and Premankur De.—p. 212.
Treatment of Syphilis by Benzobismuth. S. B. Surti.—p. 214.
External Medication in Leprosy. E. Muir.—p. 215.
Serologic Analysis of Bloodstains in Criminal Cases. R. B. Lloyd.—p. 219.
Blood Sugar After Insulin Treatment. L. Ghoshal.—p. 224.
Case of Meningocele Type of Spina Bifida. P. Savage.—p. 226.
Yaws in Chin Hills. D. D. Gulati.—p. 228.
Case of Fatal Poisoning by Nitrobenzene. D. R. Thomas.—p. 229.
*Syphilis of Liver Suggesting Liver Abscess. V. N. Mehta.—p. 230.
*Intravenous Iodine in Case of Abortion Complicated with Septicemia. B. J. Bouché.—p. 230.
Intravenous Quinine in Malignant Tertian Malaria. Y. S. Row.—p. 231.
Retention of Urine Due to Imperforate Hymen. M. Nasiruddin.—p. 232.
Case of Nasal Polypus. K. J. Shivdasani.—p. 232.
*Case of Abnormal Salivary Fistula. G. S. Chawla.—p. 233.
Foreign Body (Wooden Stick) in Abdomen. K. Narayanan.—p. 233.
*Case of Accidental Abdominal Injury. C. C. D. Gupta.—p. 234.
*Case of Death Due to Bismuth Injection. C. F. Chenoy.—p. 234.
*Pneumonia in Infant. C. C. D. Gupta.—p. 234.

Syphilitic Abscess of Liver.—The symptoms in Mehta's case suggested liver abscess but disappeared quietly under antisyphilitic treatment. Venereal infection was admitted by the patient.

Iodine Intravenously in Septic Abortion.—Antistreptococcus serum having failed to yield results in this case, Bouché resorted to intravenous injections of iodine. Eight minims of the aqueous solution (B. P.) was the first dose. The next day this was increased to 12 minims, and on the three succeeding days 16 minims was given daily. The patient made a complete and very rapid recovery.

Abnormal Salivary Fistula.—In Chawla's case a limpid fluid was discharged from behind the left ear whenever the patient took food. This condition had lasted for thirteen years. Examination disclosed a tiny fistula, with its orifice about half an inch behind the left ear. When the patient was asked to make the same movements with her jaw as if chewing food, no fluid escaped from the fistula; but the moment food was chewed, fluid commenced to run out of the fistula.

Abdominal Injury.—Gupta relates the case of a boy, aged 10, who came to him with a wound about 2 inches long below the umbilicus, from which some portion of the small intestine was protruding. While playing, he fell on a piece of broken glass and sustained the injury. The boy came to the hospital on foot supporting the coil of intestine in a piece of dirty cloth. The intestine was replaced and the wound closed. The wound healed by first intention and there was no complication.

Bismuth Injection Causes Death.—Two hours after receiving an intramuscular injection of a bismuth compound into the buttock, Chenoy's patient died with every evidence of bismuth poisoning. Chenoy says that the man's physician must have inadvertently injected the bismuth into a vein.

Pneumonia in Young Infant.—Gupta's patient was only 3 months of age. The special feature of the case lies in the fact that the temperature never rose above 98 F. The explanation given is that the thermogenic center was so overwhelmed by the toxins that there was no reactionary fever.

Indian Medical Record, Calcutta

46: 129-160 (May) 1926

Register of Patients. C. C. Murison.—p. 129.
Bacillary Dysentery. S. K. Mukherji.—p. 135.
Antibodies. Ashutosh Roy.—p. 145.

Irish Journal of Medical Science, Dublin

6: 249-296 (June) 1926

Ovulation, Menstruation and Related Phenomena in Mammals, Especially Women. J. B. Gatenby.—p. 255.
Postoperative Acidosis in Children. P. K. Dixon.—p. 267.
Irradiation Therapy. R. Stumpf.—p. 277.
Tumor of Spinal Cord. V. M. Synge.—p. 282.

Japanese Journal of Medical Sciences, Tokyo

1: 1-167 (Feb.) 1926

Tetania Parathyreopriva. S. Ogawa.—p. 1.
Water and Chlorine Exchange Between Tissues and Blood. M. Momose.—p. 31.
Influence of Toxic Substances on Nitrogenous and Purine Metabolism. I. Thyroid Substance. Y. Okura.—p. 49.
Id. II. Pyrogenous Substances. Y. Okura.—p. 65.
Influence of Yellow Phosphorus on Bone Regeneration and Endochondral Ossification Process at Epiphyseal Line. K. Otsuki.—p. 75.
Mechanism of Diuretin Hyperglycemia and Glycosuria in Rabbit. S. Mikami.—p. 121.
Antihemolytic Properties of Caffeine Group and Their Double Salts in Hemolytic System: Protective Action of These Preparations Against Anaphylaxis. U. Hirata.—p. 139.

Journal of Laryngology and Otology, Edinburgh

41: 349-420 (June) 1926

Saccus Endolymphaticus in Rabbit. W. J. M'Nally.—p. 349.
Peroral Endoscopy. I. Moore.—p. 361.
Zinc Ionization in Tympanic Sepsis. T. B. Jobson.—p. 383.

Journal of Mental Science, London

72: 171-316 (April) 1926

Affective States in Lilliputian Hallucinations. R. Leroy.—p. 179.
Lilliputian Hallucinations. M. C. Alexander.—p. 187.
*General Paralysis and Treatment by Malaria Fever. A. R. Grant and J. D. Sylveston.—p. 192.
Mental Factor in Miners' Nystagmus. H. W. Eddison.—p. 201.

Malaria Treatment of General Paralysis.—Malaria therapy is said by Grant and Sylveston to be the best method known of treating general paralysis, and it is a safe method if proper precautions are taken. One attack of malaria seems to confer a partial immunity to a second infection. Complete remissions occur in all clinical types of the disease, but are most common in the expansive type and in the demented type. In cases which do not go on to a complete remission life is prolonged, and marked physical and mental improvement may result. Malaria therapy does not seem to be so successful in women as in men. Among male general paralytics of the class admitted to mental hospitals in this country, we may reasonably expect a complete remission rate of from 20 to 30 per cent.

Journal of State Medicine, London

34: 311-372 (June) 1926

Hygiene and Sanitation in Constantinople During Allied Occupation. H. G. Hobson.—p. 311.
Occupational Deafness. D. Ranken.—p. 318.
Public Health and Obstetrics. Lady Barrett.—p. 323.
Prevention and Destruction of House Flies on Lines of Communication During Great War. E. B. Dewberry.—p. 326.
Industrial Fatigue: Effects on Human Activity in Industry. D. R. Wilson.—p. 343.
Social Conditions as Factor in Causation of Mental Disorders. M. R. Barkas.—p. 350.
Prevention of Venereal Diseases. C. N. Rolfe.—p. 356.

Journal of Tropical Medicine and Hygiene, London

29: 157-168 (June 1) 1926

Influence of Acid Reaction on Virus of Chicken Sarcoma (Rous). E. Harde.—p. 159.

Kenya Medical Journal, Nairobi, East Africa

3: 31-60 (May) 1926

Advances in Medical Helminthology. R. Daubney.—p. 33.
Hospitals for and Medical Training of Africans in Kenya. A. D. Williams.—p. 46.
Pure Milk Supply in Tropics. B. Spearman.—p. 51.
Three Cases of Liver Abscess. E. W. C. Jobson.—p. 55.
Foodstuffs of Luo Tribes. J. C. J. Callanan.—p. 58.

Lancet, London

1: 1129-1182 (June 12) 1926

Carbohydrate Metabolism in Health and Disease. H. MacLean.—p. 1129.
Present Position of Chloroform. A. Mills.—p. 1134.
Pathologic Action of Light on Eye. W. S. Duke-Elder.—p. 1137.
*After-Effects of Diphtheria on Heart. J. Hoskin.—p. 1141.
*Nature of Depressor Substance or Substances in Tissue Extracts. S. Vincent and F. R. Curtis.—p. 1142.

After-Effects of Diphtheria on Heart.—Sixteen cases of diphtheria in which there were no definite signs of heart involvement during their stay in hospital were studied by Hoskin after their discharge. All had tachycardia. Sinus arrhythmia was present in five cases and premature beats, arising in the auricles, in one case. In three cases there was definite enlargement, but in one of these cases, in which a mitral regurgitant murmur was present, there was a suspicious history of past rheumatic trouble. The heart sounds were altered in certain of the cases. In five cases the first apical sound was short, and in three it was reduplicated. In five cases the second pulmonary sound was accentuated, and a gallop rhythm was found in two. A systolic murmur was present in eleven cases, mostly over the mitral area, usually faint, but tending to be increased by exertion. One patient had developed paralysis of the right leg in the third week of the illness, and was still rather weak in that limb. Pallor was noted in two cases. In half the cases, heart symptoms were complained of or found at the examination. These were mainly shortness of breath on slight exertion, undue fatigue, and faint feelings on moving about quickly. In all cases except one, there was diminished cardiac reserve. This was more marked in cases with tachycardia. Hoskin believes that the effect of the diphtheritic toxin on the heart, in those cases in which it has become involved during the course of the disease, is a more lasting one than is generally recognized. It is therefore of the utmost importance that patients, in whom cardiac symptoms and abnormalities have been discovered during their stay in hospital, shall be examined thoroughly, both clinically and electrocardiographically, on their discharge before being allowed to return to their ordinary avocations, and that if the heart is found still affected they should be kept under observation until it has either regained the normal or has reached a stationary condition of recovery.

Depressor Substance in Tissue Extracts.—Vincent and Curtis state that they have abundant evidence that, although choline and histamine may be present in tissue extracts, and may be partly responsible for their physiologic activity, there must also be present some other substance that differs fundamentally in its pharmacodynamic action, and presumably, therefore, in its chemical nature, from either of these substances. There is some evidence that choline plays a larger part in the actions of nervous tissue extracts than in those of extracts of other organs and tissues, though even in the former it is clear that a large part of the effect is due to some substance which is neither histamine nor choline.

Medical Journal of Australia, Sydney

1: 539-568 (May 15) 1926

Gonorrhea: Sequelae in Male. V. N. B. Willis.—p. 539.
Albuminuric Retinitis of Pregnancy. J. C. Douglas and W. R. Griffiths. —p. 545.
Artificial Pneumothorax. W. S. Newton.—p. 547.
Common Disorders of Skin. K. Colquhoun.—p. 549.
Pancreatic Cyst. F. B. Crawford.—p. 552.
*Lymphosarcoma of Small Intestine. F. B. Crawford.—p. 553.
Lethargic Encephalitis. W. R. Griffiths.—p. 553.

Lymphosarcoma of Small Intestine.—Crawford's patient was 8 years of age. He complained of pain in the lower part of the abdomen. There was no other subjective symptom. The only objective symptom was a palpable rounded mass in the middle line of the abdomen just above the pubes. At operation a freely movable tumor was found intimately connected with a loop of small intestine. Resection of the bowel wide of the growth was performed and an end to end anastomosis done. The tumor proved to be a lymphosarcoma.

Medical Journal of South Africa, Johannesburg

21: 233-264 (April) 1926

Treatment of Industrial Surgical Accidents. F. P. Fouche.—p. 234.
Surgery of Gallbladder. R. Daly.—p. 247.

South African Medical Record, Cape Town

24: 217-240 (May 22) 1926

Dental Radiology. J. v. Rooijen.—p. 218.
Neuro-Otology. J. C. G. Macnab.—p. 222.
Besredka's Theory of Immunity: Review. J. J. Boyd.—p. 230.
Case of Double Fracture of Ischium. W. Gilbert.—p. 232.

Tubercle, London

7: 369-416 (May) 1926

Catarrho-Pyogenic Infections and Tuberculosis of Lung. H. Rolleston. —p. 369.
Id. R. H. B. Shaw.—p. 372.
*Significance of Variations in Clinical Type in Pulmonary Tuberculosis. S. L. Cummins.—p. 375.
*Deltoid Flattening in Early Phthisis. A. Delmege.—p. 388.

Classification of Pulmonary Tuberculosis.—In classifying the clinical varieties of pulmonary tuberculosis, Cummins says, it is not sufficient to indicate the anatomic extent of the disease and the constitutional state of the patient. It is necessary to take into consideration, also, the previous history of the patient, as to whether the present attack is of the "acute initial" or the "chronic or recrudescent" type. There is reason to think that, in the acute initial types, the exposure to infection may have been so massive in extent or repeated at such frequent intervals that there has been no time for the body to elaborate and extend its defensive mechanism to a degree adequate for the emergency. In such cases the prognosis is grave. In the chronic or recrudescent types, however, the time factor and the quantity factor of infection have been more in the patient's favor with the result that a relatively considerable measure of resistance is often acquired and the prognosis is, in such cases, better. In prognosis, in treatment and, above all, in attempts to evaluate the results of different kinds of treatment, a system of classification on which the "acute primary" or "initial" cases are differentiated from the "chronic or recrudescent" is of great importance.

Deltoid Flattening Early Sign of Phthisis.—Delmege first called attention to this sign in 1921. He then termed it "subacromial flattening." It is a trophic sign often found in early phthisis. He now proposes the name "deltoid flattening." That the condition is a definite clinical entity is evidenced by the fact of its not infrequent occurrence as the only trophic sign in many early cases of pulmonary tuberculosis, and, on the other hand, by its absence in a certain number of advanced cases showing other well marked trophic changes. It appears as a flattening in the region over the anterior aspect of the head of the humerus, so that, to a lateral view, this surface lies in a plane posterior to the corresponding one on the normal side, the slight groove which runs from the acromioclavicular joint to the anterior axillary region being also shallowed.

Annales des Maladies Vénériennes, Paris

21: 241-320 (April) 1926

*Juxta-Articular Nodules in a Syphilitic. B. Sparacio.—p. 241.
Fight Against Venereal Disease at Petrograd. Ikhtemann.—p. 251.

21: 321-400 (May) 1926

"Conceptional Syphilis." Carle.—p. 321.
The History of Individual Protection Against Syphilis. G. Morin.—p. 327.
Hock's "Treatise on French Disease": 1514. Barthélemy.—p. 362.

Juxta-Articular Nodules in a Syphilitic.—Sparacio treated a patient, aged 30, with symmetric nodules close to the elbow joints. The nodules were hard, round, the size of a pea, situated three or four in a group. The adjacent skin and glands were normal. The nodules did not cause any discomfort. The Wassermann test was positive. No changes in the joints were revealed by roentgen rays. On microscopic examination, a nodule proved to be a gumma. Several analogous cases are cited. Antisyphilitic treatment is effective in the early stage of the nodules, but without benefit when the stage of fibrous degeneration has been reached.

Bulletin de l'Académie de Médecine, Paris

95: 557-588 (June 8) 1926

*Gangrenous Abscess in the Lung. E. Sergent and F. Bordet.—p. 563.

Gangrenous Abscess of Lung from Infection of the Mouth or Nose.—Sergent and Bordet report observations of spirochetal bronchopneumonia with recurring gangrene of the right lung. It occurred from three to twenty-one days after surgical intervention, under general anesthesia. In two patients, the operation was on the nose or throat; in one, for uterine fibroma. Infection of the incision could not be incriminated. The pulmonary gangrene seems to have been induced in all by nasopharyngeal mucus, swallowed during the anesthesia. A bronchial embolus may be the origin of many postoperative complications on the part of the lungs, hitherto mistakenly ascribed to venous embolism from the wound. They reiterate that rigorous disinfection of the mouth and nose should precede every operation under general anesthesia.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 847-914 (May 28) 1926

*Treatment of Vomiting. A. Lemierre and P. N. Deschamps.—p. 848.
Ptosis of Tongue and Vagotonia. Laignel-Lavastine et al.—p. 854.
Pigmentation of Urine in Spirochetal Jaundice. Pagniez.—p. 858.
*Corpus Callosum Tumors. G. Guillain and R. Garcin.—p. 859.
Malta Fever Meningitis. Desage et al.—p. 872.
Diagnosis of Interlobar Pleurisy. Armand-Delille and Vibert.—p. 879.
Action of Adonidine by the Vein. Harvier and Schedrovitsky.—p. 884.
Abscess of Liver Cured with Emetine. P. A. Petridis.—p. 891.
Edema of Lung with Mitral Stenosis. Dargein and Doré.—p. 894.
Pneumonia of the Elderly. M. Renaud and Briault.—p. 897.
Multiple Manifestations of Congenital Syphilis in Woman, Aged 44. J. Rouillard and J. Calmels.—p. 900.
Negative Tests in Secondary Syphilis. Sézary and Lichtwitz.—p. 906.
Action of Intravenous Injections of Air on the Heart. L. Binet and E. Donzelot.—p. 911.

Arrest by Suggestion of Incoercible Vomiting with Exophthalmic Goiter.—Lemierre and Deschamps describe a case of exophthalmic goiter, complicated by incoercible vomiting and grave cachexia, in a girl, aged 16. The patient was excessively irritable, and prone to anger. The hospital physician happened to tell of another girl with obstinate vomiting who had recovered as soon as she was given Camembert cheese to eat. The patient asked for this cheese. She ate it, and then other food, without further vomiting, and the tachycardia, goiter and exophthalmos improved, until there was scarcely a trace of them in a few months. The weight increased threefold and she was later engaged in a fatiguing occupation. The unintentional psychotherapy came at the right moment to influence the disturbed balance of the vegetative system. The arrest of the vomiting was the key to the recovery.

Clinical Picture of Tumor of Corpus Callosum.—The essential features in Guillain and Garcin's patient, aged 55, were ataxia and mental disturbances characterized by emotional indifference, torpor and drowsiness. These phenomena as well as exaggerated tendon reflexes in the legs, foot clonus, bilateral Babinski sign and tremor of the fingers suggested the diagnosis of a tumor in the corpus callosum. At necropsy, a glioma was found in the anterior segment. Lesions of the association fibers of this great commissure controlling the bilateral coordination of movements, readily explain the ataxia.

Comptes Rendus de la Société de Biologie, Paris

94: 957-1048 (April 23) 1926. Partial Index

*Reactions to Tuberculin and Proteins. F. de Potter.—p. 961.
*Reducing Property of Cancer Serum. C. Mondain et al.—p. 963.
Bordet and Ciuca's Microbic Variability Theory of Transmissible Autolysis. F. d'Herelle.—p. 973. Reply. J. Bordet.—p. 975.
*Surface Tension of Serum in Cancer. K. Svehla.—p. 980.
*"Primary" Hydatid Cyst of the Pelvis. F. Dévé.—p. 983.
*Inactivation of Epinephrine. J. E. Abelous and R. Delas.—p. 999.
*Nicotine and Epinephrine Secretion. A. Tournade and M. Chabrol.—p. 1002.
*Filtrable Forms of Streptococci. S. Ramsine.—p. 1010.
*Measuring Surface of Brain Cortex. Leboucq.—p. 1017.
Action of Vagus on Intra-Auricular Conduction. P. Rylant.—p. 1032.
The Sugar of the Erythrocytes. L. Brull and P. Spehl.—p. 1039.
Rôle of Hemolytic Streptococcus in Asthma. A. Haibe.—p. 1042.

Reactions to Tuberculin and Nonspecific Substances in the Tuberculous.—Tuberculous patients were injected simultaneously with tuberculin and various nonspecific protein substances. The reactions were similar. De Potter concludes that it is not the active element of tuberculin alone which entails the local reaction.

Reducing Power of Cancer Serum.—Mondain, Douris and Beck repeated Thomas and Binetti's methylene blue test for serodiagnosis of cancer. They assert that it is not the cancer serum which reduces the methylene blue, but the cancer extract. Decoloration of the dye occurs with the cancer extract alone. The microbes contained in the extract, or their secretions, seem to be the reducing factors.

Surface Tension of Blood Serum and Its Calcium Content in Cancer.—Svehla found that the decrease of surface tension of the blood serum parallels the reduction of its calcium content, in patients with cancer.

No Primary Echinococcosis in the Pelvis.—Dévé sustains the theory that hydatid cysts of the pelvis are always secondary. He refers to a case in a girl, aged 9. At the operation, no other cysts were found except the one in the pelvis. The cyst was diagnosed as primary, probably developed from the posterior wall of the uterus. At necropsy, a deep scar was found in the liver parenchyma. The girl had had a severe fall a few months before. The traumatism of the liver may have dislodged the mother vesicle so that it dropped into the pelvis.

Inactivation of Secreted Epinephrine by the Formaldehyde of the Blood.—Abelous and Delas found a slight amount of formaldehyde in the blood of dogs, rabbits and certain other animals. The proportion was considerably larger in the venous blood than in the arterial. Formaldehyde was also detected in human urine. The formaldehyde in the inferior vena cava may inactivate the epinephrine normally secreted by the suprarenals. The inactivated epinephrine is apparently eliminated by the urine. This may explain why there is no epinephrine in the vena cava, although continuously secreted by the suprarenals.

The Share of Nicotine in Phenomena from Hyperepinephrinemia.—Tournade and Chabrol's experiments on dogs seemed to demonstrate that certain phenomena ascribed to the direct action of nicotine, such as atheroma or nicotine-chloroform syncope, are in reality caused by an increased secretion of epinephrine, due to the nicotine.

Filtrable Forms of Streptococci; Vaccination with Dick Toxin.—Ramsine's research was made with streptococcus toxin prepared by the Dick method. There was evidence of filtrable forms of the cocci, passing through the filter in the form of invisible granules. These filtrable forms are highly resistant, and may develop into the typical forms. They are virulent, and seem to immunize against the pathogenic streptococci. About 700 children were given three injections of the streptococcus toxin. Scarlet fever developed among

them in about 2 per cent. In several subjects a positive Dick test became negative in the course of the vaccination.

Measuring Surface Area of the Brain.—Leboucq coats the cortex with copper by a kind of silver-plating technic. From the amount deposited on a given area he deduces the area of the whole.

Paris Médical

59: 557-572 (June 12) 1926

Hyperglycemia Without Glycosuria. F. Rathery and Froment.—p. 557.
Vaccination Against Typhoid. A. Lumière.—p. 562.
*Purpura of Anaphylactic Origin. R. Debré et al.—p. 566.
Apparatus for Fracture of the Humerus. G. Pascalis.—p. 569.

Case of Probable Digestive Anaphylaxis Simulating Rheumatoid Purpura.—The history of Debré, Lamy and Baudry's patient, aged 9, is as follows: Pains developed suddenly in the limb joints, with edema, soon followed by a dysenteriform colitis. A purpura syndrome appeared by the seventh day of the disease, accompanied with urticaria-like patches, vasomotor disturbances, and notable enlargement of glands. All the symptoms disappeared in about five days. They are inclined to consider this case as an anaphylactic purpura of digestive origin, although the responsible factor could not be established. Paralysis of the capillary endothelium, irritation of smooth fibers, hyperproduction of lymph, and its incoagulability, explaining the phenomena observed, might be induced by protein compounds in a sensitized subject.

Presse Médicale, Paris

34: 721-736 (June 9) 1926

Insufficiency of the Heart. C. Lian.—p. 721.
*Muscular Work and the Respiratory Metabolism. M. Boigey.—p. 724.
*Dressings with Horse Serum. G. A. Weill.—p. 733.

Respiratory Metabolism During Physical Training.—Boigey used the graphic method for recording changes of respiratory metabolism during physical training. The amount of carbon dioxide eliminated seemed to be smaller, the more intensive the exercise. In other words, those who work with more enthusiasm, utilize better the oxygen absorbed; the work is done more economically. Exercise started with too much haste, entails considerable elimination of carbon dioxide, for a few seconds to three or four minutes. Breathlessness in runners does not depend on the respiratory metabolism. It is connected with irritation of the respiratory centers by carbon dioxide as well as by other products of intensive muscular work, especially lactic acid.

Horse Serum as Dressing for Wounds.—Weill extols the use of horse serum in wounds of the face, hands or fingers. As it dries, it forms a protecting varnish. Gauze or cotton, soaked in the serum, is applied to the wound. When nearly dry, in five minutes (or less if a current of hot air is applied), the wound may be dusted with boric acid. The serum film does not retract, like collodion, and it clings closer, while it can be easily rinsed off.

34: 737-752 (June 12) 1926

*Low Epidemic Encephalitis. R. Cruchet and H. Verger.—p. 737.
Calcified Subacromial Bursa. L. Lamy and P. Pérès.—p. 739.
*Fat-Soluble Vitamins and Exohormones. R. Clément.—p. 740.

Low Forms of Epidemic Encephalomyelitis.—Cruchet and Verger have encountered twenty-eight cases in which the epidemic disease was almost exclusively restricted to the spinal cord; in six others, to the roots, and in five, there was polyneuritis. They explain them as low forms of epidemic encephalitis, on account of the epidemic prevalence of this disease at the time, and the appearance of certain symptoms pathognomonic of the disease, as well as the peculiar grouping and capricious course of the nervous disturbances, unlike anything observed in ordinary nervous affections. The prognosis is always uncertain: complete recovery in some cases, sequelae or death in others.

The Reproduction-Promoting Vitamin E and the Exohormones in General.—Clément discusses the fat-soluble vitamins. They are resistant to alkalis, heat and desiccation, and are soluble in fats. They contain an element—vitamin E—which apparently influences reproduction in animals. A diet lacking in this substance E induced disturbances of ovulation and even sterility in rats. Vitamin E is found mostly in vegetable oils, lettuce, meat and oats; also in extracts of grains, wheat, hemp, cotton-seed oil and in maize. It is lacking in milk, proteins, amino-acids and cod liver oil, as well as in cocoa, linseed and sesame oils. Sterility from lack of vitamin E is not accompanied by any apparent lesions of the ovaries; its pathogenesis is still unknown. There seems to be an analogy between vitamins and endocrine secretions. Both seem to influence the nutrition of tissues as well as the metabolism of cells and humors; and both may also stimulate endocrine secretion. They may be regarded as exogenous hormones, or exohormones, in contrast to the endocrine endogenous hormones. The theory is suggested that the vitamins may induce certain atomic changes, as an explanation of their action.

Revue Franç. de Gynécologie et d'Obstét., Paris

21: 145-224 (March) 1926

Corpus Luteum and Vesicular Mole. P. Gaifami.—p. 145.
Obstetrical Anesthesia. J. L. Wodon and A. Poulain.—p. 159.
Oscillometry in the New-Born. P. Balard.—p. 166.
Two-Stage Operation for Pyosalpingitis. Duchet-Suchaux.—p. 181.

21: 225-284 (April) 1926

Relations Between Colon Bacillus Infection and Helminthiasis in Women. V. Le Lorier.—p. 225.
Treatment of Chronic Salpingo-Oophoritis. A. Laurentie.—p. 230.
*Blood Grouping in Obstetric Practice. P. Falgairolle.—p. 236.

Identification of Blood Groups in Obstetric Practice.—Falgairolle specifies two sources of error in examining blood for incompatibility: The erythrocytes and the serum may not be capable of iso-agglutination. It frequently happens that the iso-agglutinogens (red corpuscles) and especially the iso-agglutinins (serum) characterizing the blood group, are not yet developed in the new-born. In Astrowe's case, transfusion of the maternal blood did not produce any by-effects in the infant, aged 12 months, but, repeated a month later, it was followed by a grave shock. The other source of error lies in false iso-agglutinations. The false agglutination is merely the aspect presented by abnormally rapid sedimentation of erythrocytes. This is common in women, and is still more pronounced during pregnancy. On the other hand, the sedimentation speed of the infant's erythrocytes is not accelerated. He utilizes a method which, he says, averts both errors. A standard serum of high agglutinating power is used with kaolin for this purpose. The standard serum serves to reveal the group of the tested blood, and the kaolin to eliminate false iso-agglutinations. Three parts of the standard serum are mixed with one part of a kaolin suspension (1:3) and one part of the blood. The kaolin test requires only ten to fifteen minutes at the bedside. Forty blood transfusions have been applied with this technic, without any accident.

Schweizerische medizinische Wochenschrift, Basel

56: 513-536 (May 29) 1926

H. Sahli's Seventieth Birthday. Lichtheim.—p. 513.
Mycotic Sepsis. E. Ziegler.—p. 514.
Serous Meningitis from Influenza. Burckhardt and Kollarits.—p. 517.
"Nutrition Problems." J. Abelin and J. Waldsburger.—p. 518.
*Mortality Statistics. A. Gigon and F. Kinzler.—p. 519.

Mortality Statistics, Especially of Tuberculosis.—Gigon and Kinzler publish extensive mortality statistics and charts dealing especially with Switzerland. Details as to the mortality in different age groups are especially instructive. The general decrease in the death rate is evident only up to the age of 65. Tuberculosis could be successfully combated by founding homes and working places for the infectious patients, and by better hygiene of the dwellings.

56: 537-560 (June 5) 1926

*The Sympathetic and the Striated Muscles. L. Asher.—p. 537.
*Action of Thyroid Substances. J. Abelin.—p. 538.
*Influence of Diseased Kidney on Healthy Mate. H. Walthard.—p. 539.
Endometroid Proliferations. W. Neuweiler.—p. 545.
Volume Bolometry in Influenza and Encephalitis. D. J. da Cunha and I. V. Lazarraga.—p. 548.
*Agranulocytosis. W. Feer.—p. 551.

The Sympathetic and the Striated Muscles.—Asher is inclined to deny a sympathetic innervation of the muscles.

At least, no indications of it were found in carefully conducted experiments so far. Nevertheless, he declares that further research is necessary since it is improbable that the anatomically established presence of sympathetic fibers should have no demonstrable significance.

Action of Thyroid Substances.—Abelin found that the increase of the basal metabolism as well as of the specific dynamic action due to administration of thyroid tissue to rats may be inhibited by fat. The glycogen fixation in the liver of such animals remains almost normal if fat is added to the food. He believes that fat counteracts the injurious effect of thyroid on the metabolism, especially of carbohydrates.

Influence of Diseased Kidney on Healthy Mate.—Walthard investigated the elimination of indigocarmin and the presence of albumin as well as of casts in the urine after various injuries to one kidney. He believes that the other kidney suffers from the action of the products of decomposition. He also obtained the impression that decomposition of a kidney has a stronger influence on the remaining kidney than resorption of a testis.

Agranulocytosis.—Feer noted leukocyte counts below 3,000 in 186 of 29,498 patients (0.63 per cent). Among them were thirteen patients with counts below 1,000. The latter died shortly afterward, with the exception of one woman with Banti's disease. He believes that agranulocytic angina is only one type of sepsis.

Policlinico, Rome

33: 757-787 (May 31) 1926

Treatment of Glaucoma. C. Ascher.—p. 757.
Sarcoma of Vascular Sheath. F. Speciale.—p. 761.
*Influenza Epidemic. R. Gaeta.—p. 763.
"Hemophilia." R. Monteleone.—p. 764.
Alcoholism and Literature. A. Pazzini.—p. 765.

Influenza Epidemic.—Gaeta observed several cases of bronchitis localized at the apex in convalescents from influenza in the recent benign epidemic. The other symptoms were a pale complexion, slight tachycardia and trigeminal neuralgia. The patients recovered within a short time.

33: 789-822 (June 7) 1926

Defense Reflexes. A. Valentini.—p. 789.
*Amebiasis and Endocarditis. C. B. Farmachidis.—p. 794.
"Cholesterol in Urine." L. Condorelli.—p. 796.
*Dorsal Percussion of the Aorta. G. Fabj.—p. 798.

Amebiasis and Endocarditis.—Farmachidis adds to his two previous cases two new instances of endocarditis occurring during amebic dysentery.

Dorsal Percussion of the Aorta.—Fabj confirmed roentgenologically the semilunar dulness he described in the paravertebral line at the height of the third rib, in cases of dilatation of the aorta.

Riforma Medica, Naples

42: 457-480 (May 17) 1926

Meinicke Test. G. Spicca.—p. 457.
*The Cerebellum in Malaria. A. Puca.—p. 461.

The Cerebellum in Malaria.—Puca observed a cerebellar syndrome and a psychosis due to malaria. The young man recovered under quinine and arsphenamine.

42: 481-504 (May 24) 1926

The Neapolitan School. L. D'Amato.—p. 481.
*Atony of the Esophagus. P. Russi.—p. 487.
*Epinephrine in Chloroform Syncope. C. F. Bianchetti.—p. 498.

Atony of the Esophagus.—Russi reports a case of paralysis and another of atony of the esophagus. As a rule, deglutition of soft foods is more difficult in such patients than the swallowing of either fluids or solids. This differentiates them from cases of stenosis of the esophagus, although roentgen study is necessary. Lesion of the vagus by tuberculous lymph nodes was the probable cause in his first case. The other was a neuropathic woman, aged 59.

Epinephrine in Chloroform Syncope.—Bianchetti's patient, a man with metastases of carcinoma, stopped breathing after inhalation of a few cubic centimeters of chloroform. The heart beat stopped shortly afterward. Artificial respiration and subcutaneous injections were of no avail. He injected 1 cc. of a 0.1 per cent solution of epinephrine into the heart and while maintaining the artificial respiration, he gave twenty-five minutes later another injection of 1.5 cc. of the epinephrine, and 1 cc. of a 25 per cent solution of caffeine. The patient still did not react. They kept on with the respiration. A third injection of 2 cc. of the epinephrine, given thirty-five minutes after the onset of the syncope, resuscitated the patient. Yet he did not regain consciousness, and died in a few hours.

Rivista di Clinica Pediatrica, Florence

24: 361-432 (June) 1926

*Oncolytic Power of Serum. G. Bentivoglio.—p. 361.
Myopathies in Children. U. Rubbi.—p. 387.

Oncolytic Power of Serum.—Bentivoglio made the Freund-Kaminer test with refractometric reading with the serum from children. He confirms the pronounced lysis of cancer cells in health and in various diseases. The lytic power was low in cachexia, and in acute or subacute nephritis. It was practically absent with malignant neoplasms and in congenital idiocy.

Anales de la Facultad de Medicina, Montevideo

10: 817-884 (Oct.) 1925

Local Anesthesia. E. Pouey.—p. 817.
*Preoperative Immunization. E. Blanco Acevedo.—p. 842.
Retrodisplacement of the Gallbladder. A. Lamas.—p. 852.
*Neurotrophism with Experimental Traumatism. Stajano.—p. 858.
Some Thoraco-Abdominal Bullet Wounds. D. Prat.—p. 869.

Preoperative Vaccination. — Blanco Acevedo prepares patients for an operation by injecting subcutaneously from 2 to 4 cc. of a polyvalent vaccine made with 35, 80 and 15 hundred millions of staphylococci, the pyocyaneus and streptococci respectively. He gives three injections at three day intervals and waits to operate until three days have elapsed since the last injection. This has been his routine procedure for four years, and he says that it insures an aseptic course in operations on bones, and that it allows suture at once without drainage in hysterectomy for cancer, the results at least as good as Faure reports with the Mikulicz. It insures a smooth recovery from practically all operations, free from the grave and minor mishaps of infection, if the technic has been faultless. He also practices this preoperative immunization as a preliminary to radium therapy. He adds that in his last five gynecology courses, the students have not had an opportunity to see any cases of sepsis or embolism, phlebitis or suppuration in the wall as the women have all made such smooth recoveries. The experience has been the same in the army hospital—a total of 400 operations. He remarks that he was the pioneer in this preoperative immunization.

Neurotrophic Action with Experimental Chronic Traumatism.—Stajano has noted that when cancer has been experimentally produced by painting with tar, the latter acts not only at the point where it is applied but its action is evident also at certain distant points, these points being so situated as to imply the intervention of a nerve element. While the tar was always applied to the inside of the ear of the rabbit, the resulting tumors developed not only on the inside but also on the outside of the ear, and always at the same point. At this point there is first a falling out of hairs, then eczema, and then a papillomatous growth. The other ear displays a slight reaction along the same lines and with the same topographical arrangement.

10: 885-948 (Nov.) 1925

The Basal Metabolism with Pathologic Thyroid. E. Claveaux.—p. 885.
*Intraspinal Anesthesia. J. M. Silva.—p. 909.
Two Cases of Large Aneurysm of the Aorta. Grezzi and Buquet.—p. 931.

Intraspinal Anesthesia.—The first intraspinal anesthesia at Montevideo was by Navarro in 1899. In the last ten years this technic has been applied in an average of 300 cases a year, without a single death or serious tardy mishap. In a report presented to the Surgical Society at Paris, ten deaths were mentioned in a total of 20,267 intraspinal anesthesias.

"Analysis of these deaths exculpates the method." The "twenty minute accidents"—pallor, vomiting and small pulse during the first fifteen to twenty minutes—are slight and transient. The best way to combat them is by lowering the patient's head. The great advantages of this method are that there is no shock, and that very little of the anesthetic is required, and it does not affect the liver, heart, lungs or kidneys. It does not modify azotemia or acidosis. Although headache is common, the discomfort from this is not to be compared with that from the vomiting after general anesthesia, and the headache yields readily to antipyrin. Silva adds that pure procaine is used at Navarro's clinic, without epinephrine or local anesthetic; caffeine is relied on in emergencies but is not used regularly. The only two instances of accidents were in cancer patients with intense jaundice.

Archivos Esp. de Enf. del Aparato Digestivo, Madrid

9: 193-256 (April) 1926

Sodium Bromide in Stomach Disturbance. Fernández Martínez.—p. 193.
*Balantidium Dysentery in Spain. Devesa.—p. 228.
Acute Perforation of the Stomach. A. Urquijo.—p. 235.

Balantidium Dysentery in Spain.—Devesa remarks that although balantidium dysentery has been known in Europe since Malmsten discovered it at Stockholm in 1857, it is very rare. No instances of it have been published in England and only five in France. He reports two cases, the first to be discovered in Spain. Both were cured by emetine and neoarsphenamine. Enemas of bismuth aided in the local healing.

Archivos Españoles de Pediatría, Madrid

10: 65-128 (Feb.) 1926

Surgery in Spastic Infantile Paralysis. M. Bastos Ansart.—p. 65. C'cn.
*Bronchopneumonic False Croup. Julio Laguna.—p. 92.
Child Psychology: Normal and Pathologic. Cesar Juarros.—p. 103.

Bronchopneumonic False Croup.—Laguna describes seven cases out of a series of eight under observation in a recent two months in which children, aged 4 months to 6 years, after attacks of bronchitis, bronchial pneumonia or tracheobronchitis, developed croup suddenly and so severely that intubation was required. No diphtheria bacilli could be discovered, and the aspect of the throat also excluded diphtheria. The one child treated by tracheotomy died, as also one of the four intubated; the others recovered. Croup of this type has been encountered with measles, scarlet fever, influenza and chickenpox. As the nervous and spastic elements predominate, treatment should be with sedatives and prompt intervention to prevent fatal suffocation.

Archivos Latino-Amer. de Pediatría, Buenos Aires

20: 79-144 (Feb.) 1926

*Diagnostic Study of Birth Paralyses. A. M. Marque.—p. 79.
Diagnosis of Congenital Syphilis in Older Children. E. Beretervide.—p. 92.
*Tracheobronchial Glandular Disease. V. Escardó y Anaya.—p. 102.
Generalized Tuberculosis with Slow Course in Infants. Walter Piaggio Garzón.—p. 114.

Birth Paralysis.—Marque has found true paralysis without bone lesions only in 5 per cent of his 118 cases of birth paralysis since 1917. The false birth paralyses from detachment of the epiphysis or hemorrhage around it or from injury in or around joints were encountered in 85 per cent of the total, and the combination of true and false paralysis occurred in 10 per cent. Sixteen roentgenograms show the lesions responsible for the symptoms. They grow worse as the child develops. The differential diagnosis is based on the clinical course and roentgen-ray examination; after the child is 4 months old, electric tests may prove instructive. The history of the delivery is important in classifying the case. Radiography will reveal whether the center of ossification is in its normal place—this can be determined as early as the second to the fourth week.

Roentgen-Ray Treatment of Tracheobronchial Glands.—Escardó extols the prompt action of exposure to the roentgen rays when young children present a spasmodic cough, rebellious to the usual measures, with slight symptoms otherwise except the asthma-like condition. The roentgen rays confirm the suspicion of enlarged tracheobronchial glands, and exposure of the hilum region to a dose of 5 H. units with a 1 mm. aluminum filter induced great improvement in three cases described, with subsidence of the adenopathy in some of these and other cases.

Boletin de la Soc. de Obstet. y Ginec., Buenos Aires

5: 5-23 (April 8) 1926

Embryotomy with Living Fetus. J. B. González.—p. 5.
*Succession of Cancers with Long Interval. J. A. Gabastou.—p. 14.

Two Primary Malignant Tumors.—Gabastou relates that not a trace of a cystadenoma of the ovary that had been extirpated three years before was found at the operation for extirpation of an epithelioma of the uterus in the case described, in a woman aged 44. She seems to be in perfect health since this second removal of an apparently primary cancer. Iribarne described a similar case. His patient had been cured by radium treatment of an inoperable cancer of the cervix of the uterus. Six years later she developed malignant bowel disease. It did not seem to have any connection with the primary genital tumor.

Brazil-Medico, Rio de Janeiro

1: 43-52 (Jan. 23) 1926

*Syphilis in Gynecologic Clinic at Rio. Nelson Barbosa.—p. 43.
*Partial Tetanus. Sá Earp, Jr.—p. 46.
Addendum to "Study of the Verumontanum." A. Valerio.—p. 47.

Syphilis in Gynecologic Clinic at Rio de Janeiro.—Barbosa has had the Wassermann test applied to every woman entering the clinic during the last seven years. A positive reaction was obtained in 37.9 per cent in 1921, but the proportion has dropped since to 25.2 per cent.

Partial Tetanus.—The boy, aged 12, had developed intense contracture of the right leg, with tonic contractions and lancinating pains, in the two weeks that followed trauma of the leg below the knee. There had also been transient dysphagia. Tetanus antiserum had been given at the time of the wound, and its resumption, with local treatment of the suppurating wound, and bromides, gradually conquered the partial tetanus.

1: 171-184 (March 27) 1926

*Cephaloplegic Form of Encephalitis. J. Bonaba and F. Ygartua.—p. 171.
Frambesia in Parahyba. E. de Almeida and O. de Oliveira.—p. 172.

Cephaloplegic Form of Epidemic Poliomyelitis.—Bonaba and Ygartua report a new case of the cephaloplegia described by Fernandes Figueira in young children. The child aged 3 presented otherwise symptoms of an abortive form of acute poliomyelitis. There was no paralysis, merely an inability to hold the head up; it contrasted peculiarly with the coexisting nuchal rigidity. Lumbar puncture revealed an intense cytologic reaction with polymorphonucleosis. The child soon recovered completely, and is now apparently normal except for slight weakness and loss of the knee-jerk.

1: 185-200 (April 3) 1926

*Treatment of Epidemic Encephalitis. Enjolras Vampré and F. Cintra do Prado.—p. 185.

Treatment of Epidemic Encephalitis.—Vampré and Cintra do Prado advise to keep the patient in bed, the diagnosis once settled, and allow only milk or a milk-vegetable diet. The nasopharynx should be disinfected, and sodium salicylate may be found useful; it has proved successful beyond all anticipations in some cases. The same applies also to methenamine. Among the valuable adjuvants are stimulants, tonics, sedatives and baths, but to date little has been accomplished in treatment of the disease as a rule, although rare instances of complete recovery justify persevering treatment.

Gaceta Médica de Caracas

33: 1-16 (Jan. 15) 1926

Visit to Bad Nauheim. J. R. Risquez.—p. 1.
Medical Geography of State of Bolivar. Briceño Rossi.—p. 3. C'tn.
*Syphilis Masquerading as Typhoid. L. F. Blanco.—p. 13.

Syphilitic Pseudotyphoid.—Blanco relates that the clinical picture was that of typhoid, with morning remissions, but as baths did not seem to have any effect, and as the Wassermann reaction was positive, treatment for syphilis was applied

without further delay, with prompt benefit. In another case syphilis of a peculiarly contagious type masqueraded as typhoid fever for a time. In tropical climates, typhoid may simulate almost any other disease, including the chills of malaria, hemorrhagic nephritis, catarrhal cholecystitis, and torticollis.

Gaceta Médica de México, Mexico City

57: 1-130 (Feb.) 1926

Experiences with Uterine Cancers. J. Villarreal.—p. 1.
*Treatment of Vaginal Discharges. E. Ramirez.—p. 26.
Pithiatism and Hysteria. E. O. Aragón.—p. 29.
Therapeutic Proceedings. F. Bulman.—p. 36.
Actinomycosis. I. Prieto.—p. 44.
Critical Study of the Teaching of Medicine in Mexico. E. Pous Chazaro. —p. 58. Idem. S. González H.—p. 67.

Bacteriologic Examination of Vaginal Discharge.—Ramírez emphasizes the necessity for ascertaining the actual flora of the vagina with pathologic discharge. He cites instances of the harm done by treatment on the basis of assumed gonococcal infection when the pneumococcus or other germ was involved. He remarks that if the mouth were treated with such potent washes as are currently used in the vagina, the injury therefrom might be better appreciated. Routine microscopic examination might save many women from chronic irritative processes from injudicious treatment.

Lisboa Médica, Lisbon

2: 495-550 (Nov.) 1925

*Gastrectomies at Lisbon. Custódio Cabeça.—p. 495.
Medical Education at Lisbon. A. Celestino da Costa.—p. 510.
Another Case of Ayerza's Disease. Mário Moreira.—p. 540.

The Polya Technic for Resection of the Stomach.—Cabeça's serial roentgenograms show conditions before and after in fifteen cases of hour-glass or cancerous stomach in which treatment was by Polya's method of pylorectomy. In 6,941 major operations in the hospitals of Lisbon in the last twenty-five years, this pylorogastrectomy thus figures with only fifteen, although resection of the stomach by various other technics was done in a total of seventy-eight cases. These are tabulated with minute detail. Nearly 44 per cent were cured, and 3.8 per cent much improved. It is an illusion to imagine that postoperative pneumonia can be warded off by avoidance of inhalation anesthesia, because it is liable to develop even with local anesthesia or blocking the splanchnic nerves.

Medicina Ibera, Madrid

20: 241-272 (Feb. 27) 1926

Genital and Extragenital Venereal Chancroids; Lymphatic Complications. R. Bertoloty.—p. 241.
*Amebic Dysentery in Children. J. M. Pardo.—p. 245.

Amebic Dysentery in Children.—Pardo relates that two young children, one an infant, aged 9 months, belonging to a healthy Madrid family living in the best conditions, developed dysentery. The infant was affected first and amebas were found in its stools. Nothing could be found to explain the infestation until a watchmaker reported that his child had been having a similar disease, and encysted amebas were found in his stools. The nurse of the infant in the first family had been having a watch repaired, and the watchmaker and the nurse had evidently been intermediate carriers of the amebas. The cure was realized in all with emetine, never over 0.005 Gm. per kilogram. The fever was not high in any of the children, but the urine showed large amounts of urates, and symptoms from dehydration were pronounced.

Prensa Médica Argentina, Buenos Aires

12: 877-904 (Feb. 10) 1926

Amebiasis in Man. M. R. Castex and D. Greenway.—p. 877. C'tn.
*Tumor in Cerebellopontile Angle. Alurralde and Sepich.—p. 883.

Cerebellopontile Hemorrhagic Sarcoma.—Nineteen illustrations show the various differential points and results of microscopic examination in a case of tumor occupying the right cerebellopontile angle in a man, aged 27. The first appreciable symptoms had been diplopia and frontal-occipital headache, with exacerbation during muscular effort or sneezing. Under intravenous treatment these symptoms improved but returned more severe in a year, with others. Necropsy revealed a hemorrhagic sarcoma, 4 by 6 by 8 cm., which shelled out easily. The operation had been deferred too long.

Revista de la Asoc. Médica Argentina, Buenos Aires

39: 109-220 (April) 1926

*Publications of the Argentine Medical Association. Waldorp.—p. 109.
*Encephalitis in Children. Lanfranco Ciampi and Ameghino.—p. 119.
*Parathyroid Treatment. B. A. Houssay.—p. 145.
Recent Progress in Treatment of Pulmonary Tuberculosis. G. Aráoz Alfaro.—p. 173.
Social Service in Hospitals. M. V. Carbonell and T. A. Tonina.—p. 183.
Factors Which Influence Bottle Feeding of Infants. Garrahan.—p. 204. Idem. Mariano Etchegaray.—p. 212.

Publications of the Argentine Medical Association.—The *Revista* was the exclusive organ of the association until 1920. At that time, the publication committee began to issue separate journals for the various groups of specialists forming the association. Now there are eleven of these publications which appear promptly after the meetings, while the *Revista* appears at irregular intervals. In 1925, fifty-eight issues were published in all, a total of 3,851 pages, representing 358 articles by 436 authors; many have been summarized in these columns.

Medicolegal Aspect of Epidemic Encephalitis in Children.—Ciampi and Ameghino comment on the necessity of a penal code for children. They emphasize the medicolegal aspect of the sequels of epidemic encephalitis in the young, describing four police cases.

Parathyroid Treatment.—Houssay remarks that analysis of his own experience and the literature has convinced him that much may be hoped from parathyroid treatment. The most striking result observed in the experimental research at the physiology institute was in a dog that had had the thyroid and parathyroids removed and had been fed on raw meat. The intense tetany that followed subsided under parathyroid treatment by the mouth, and the third day the calcium content of the blood rose to 12.12 mg. per hundred cubic centimeters, but the tetany returned at the same time. The parathyroid extract was then injected intravenously and there was no further tetany. When this was dropped, fatal tetany followed at once. Three pages of bibliography are appended.

Revista de Cirugía, Buenos Aires

5: 1-48 (Jan.) 1926

What Can Be Realized with Kineplasty According to Personal Experiences to Date. M. Bastos Ansart.—p. 1.
Surgical Treatment in Exophthalmic Goiter. D. Prat.—p. 16.
*Resection of Superior Maxilla. R. V. Hernández.—p. 41.
Surgery for Postoperative Stomach-Colon Fistula. Pasman.—p. 43.
Appendicitic Abscess in Femoral Hernia. Alberto Gutiérrez.—p. 45.

Resection of the Superior Maxilla Without Loss of Blood.—Hernández' experience demonstrates that preliminary ligation of the common carotid artery transforms this operation, allowing it to proceed systematically, cleanly and tranquilly. He gives illustrations of several of the eight cases in which this treatment has been applied for myxosarcoma or malignant epulis. In a large myxosarcoma of the orbit, in a boy, the whole orbit was cleared out through a supra-orbital incision, in a single mass. Although the processes were all far advanced when the surgeon was consulted, yet recurrence after the operation was very slow if it occurred at all.

Revista de Medicina y Cirugía, Caracas

9: 23-40 (Feb. 28) 1926

Mercury in Treatment of Malaria. G. Cremonese.—p. 23.
Case of Pituitary Tumor at Caracas. J. Izquierdo.—p. 31.
Adhesions Simulating Chronic Appendicitis. Rivas Morales.—p. 33.

Revista de Medicina y Cirugía, Havana

31: 43-78 (Jan. 25) 1926

Chronic Traumatic Lesions of the Brain. W. Sharpe.—p. 43.
*Retention of Urine in Prostatitis. J. B. Ruiz.—p. 57.
Anomalies in the Brachial Plexus. Buigas et al.—p. 61.

Diagnostic Import of Persisting Retention of Urine in Acute Prostatitis.—Ruiz describes six out of a larger list of cases in which prolonged retention of urine in acute prostatitis

proved to be a sign of suppuration in the prostate. With dysuria growing constantly more painful and the amount of urine voided less and less, sometimes requiring catheterization, with symptoms suggesting acute prostatitis, an abscess in the prostate can be confidently foretold.

Revista Filipina de Med. y Farmacia, Manila

16: 243-260 (Nov.) 1925

*Study of Typhoid Fever. J. S. Hilario and F. Ira.—p. 244.

The Otani Reaction in Typhoid Fever.—Hilario and Ira have been making a comparative study of the Otani and the agglutination tests in typhoid, and find the former more reliable than the latter. A negative agglutination test does not positively exclude typhoid, while a negative Otani seems to exclude entirely the possibility of typhoid or paratyphoid. It is based on the intensification of the opsonic power by the microbic antigens, as revealed by the phagocytic index. The technic is simple: Four or five drops of blood are drawn into a test tube containing one drop of the sodium citrate solution. When well mixed, a small quantity is taken up in a capillary pipet and to this is added an equal amount of a fine emulsion of the bacilli of the disease in question. After mixing as usual the pipet is sealed in the flame and is placed in the autoclave at 37 C. or in the water bath at 38 C. In ten minutes the tube is withdrawn and a drop of the contents is placed on a slide as for microscopic examination of the blood; it is stained, and the phagocytes are counted. The details in twenty-five cases are given in a table. The test is reliable even in the first two or three days of the typhoid or paratyphoid, and in infants as well as in adults they say.

Semana Médica, Buenos Aires

1: 325-376 (Feb. 18) 1926

*Cholesterol in Pleural Effusion. C. Largos Garcia.—p. 325.
*Asthma and Malaria. Carlos Mainini.—p. 328.
Outcome with Metal Aids in Fractures. M. Fitte.—p. 330.
Which Children Benefit by Open-Air Schools? Garrahan.—p. 338.
Lymphangitis and Adenitis in Mastoid Region. R. Becco.—p. 342.
History and Present Status of Turgidization of Placenta. W. Koerting. —p. 353.
Table for Urologic Roentgenography. Carlos Heuser.—p. 368.
Pseudo-Amebas Formed in Solutions of Salts. A. L. Herrera.—p. 372.

Cholesterol in Pleural Effusion.—Lagos García adds another to the twenty cases on record in which the pleural effusion contained numerous cholesterol crystals. The blood of the boy, aged 13, contained no more than the normal proportion of cholesterol. The tuberculin skin test was positive.

Asthma and Malaria.—The man had suffered from severe asthma for two and a half years, rebellious to all treatment. The patient was not aware that he had latent malaria, but the blood showed a few malaria parasites. Under quinine the spleen returned to normal size, the parasites disappeared from the blood, and there was no further asthma—all in less than six days.

1: 377-428 (Feb. 25) 1926

*Llama Serum in Treatment of Syphilis. E. Chabroux.—p. 377.
Melanoderma in Addison's Disease. Goyena and Caorsi.—p. 385.
Cholesterol Pleuritis and Tuberculosis. C. Mainini.—p. 386.
*Two Primary Cancers? A. J. Pavlovsky.—p. 390.
Welfare Work for School Children in Argentina. Tonina.—p. 394.
Present Status of Cancer of the Uterus. J. V. Jiménez.—p. 417.
*Teleroentgenography of the Heart. Martín Miranda Gallino.—p. 421.
The Pathology of Malaria. A. Bignami.—p. 424.

Llama Serotherapy of Syphilis.—Chabroux gives the details of twelve cases of syphilis in which treatment was by Jáuregui and Lancelotti's method with an antiserum derived from llamas. In only one case were the favorable results more than briefly transient, and the Wassermann reaction persisted positive in all.

Primary Versus Metastatic Cancer of Liver.—Six months after abdominal hysterectomy for epithelioma of the cervix, the liver developed a large adenocarcinoma with the aspect of primary malignant disease. There was no other sign of metastasis.

Teleroentgenography of the Heart.—Miranda Gallino analyzes with eight charts the mechanical and mathematical factors involved in roentgenography of the heart to obtain the most natural pictures. He found 3.5 meters the most instructive distance for the purpose.

Siglo Médico, Madrid

77: 193-216 (March 6) 1926

*Malignant Degeneration of Gastric Ulcer. González Campo.—p. 193.
Acute Miliary Tuberculosis. J. Valdés Lambea.—p. 196. C'tn.
Cardiac Murmurs. G. R. Gonzalo.—p. 198.
Cure of Lupus Under Common Salt. D. Jiménez García.—p. 199.

Malignant Degeneration of Gastric Ulcer.—González Campo states that in all his practice as an internist, he knows of only three cases of gastric ulcer, treated medically alone, in which cancer developed later, seven to sixteen years after the first symptoms. In his latest hundred cases of gastric cancer, the first symptoms had been noted from two to twelve months before; in nineteen, up to two years, and in one three years. Only nine of the hundred had a history of probable ulcer from five to twenty-one years before, but the clinical history was not decisive, and the lesion may have been in the duodenum, or it may not have been of the hard type. Consequently, even this 9 per cent seems altogether too large a proportion for instances of malignant degeneration of a gastric ulcer. He cites various authorities showing the wide divergence of opinion as to the frequency of cancer developing from an ulcer.

77: 217-236 (March 13) 1926

*Fever in Children. Baltasar Hernández Briz.—p. 217.
"Feminism and Sex." Vital Aza.—p. 219. C'td.
The Death Rate in Spain. F. Criado y Aguilar.—p. 227. C'tn.

Fever in Children.—Hermández Briz quotes Villanova in the thirteenth century as saying "Beware of giving drugs to children and to the aged, and of long continued use of any medicine, even for the young." Children react tumultuously to even slight causes, the reverse of the aged. Their exaggerated reaction to a drug imposes the necessity for simple measures in treatment. A few hours of restriction to water, an enema of sterilized water and a very little castor oil are all that is needed for young children as a rule to correct acute indigestion or effects of chilling, with water externally as the only safe means to combat fever, if it requires combating. As an instance of the striking lack of reaction in the aged, he mentions the necropsy surprise of acute total pneumonia of the right lung found in one aged woman who had not complained of symptoms. He warns against purging children, quoting Martín Martínez in the seventeenth century who compared the purge to a thief who carries off treasure along with much that is useless.

Archiv für exp. Pathologie und Pharmak., Leipzig

112: 261-378 (May) 1926

The Active Substances of Digitalis Leaves. M. Cloetta.—p. 261.
Effects of Poisons on Surviving Frog Kidney. I. Noguchi.—p. 343.
Pituitary Extract and Renal Function. K. Fromherz.—p. 359.
*Action of Liquid Petrolatum on Intestine. A. Lánczos.—p. 365.

Action of Liquid Petrolatum on the Intestine.—From fluoroscopic studies on cats Lánczos concludes that liquid petrolatum cannot be regarded simply as a lubricant. It hastened the passage of the contrast meal through the stomach and small intestine, and visibly increased peristalsis in these organs. It did not appear to affect the large intestine. Defecation was excited in the normal manner from the rectum, and usually did not result in complete evacuation of the intestine. The closure of the sphincters of the pyloric antrum and of the pylorus brought about by morphine was almost without exception weakened or prevented by liquid petrolatum. It is probable that the therapeutic effect of the oil is owing to its antispasmodic action in keeping away irritations, but it may be due to direct nervous stimulation of movements in the stomach and bowel.

Archiv für die gesamte Physiologie, Berlin

212: 375-650 (May 17) 1926

Permeability of Membranes for Certain Ampholytes. O. Risse.—p. 375.
Physiology of Pulling Oneself Upward. Hanf and Bethe.—p. 403.
*Experiments in Growth. P. Junkersdorf.—p. 418 and p. 441.
Influencing Decerebrate Rigidity. F. Leiri.—p. 465.
Effect of Exercise on Horse's Blood. Scheunert and Müller.—p. 468.

Reflex Changes in Blood Cell Count. Scheunert and Krzywanek.—p. 477.
*Experiments in Hyperthyroidism. R. E. Mark and A. Stradal.—p. 486.
The All-or-Nothing Law and Sense Perception. K. Stüber.—p. 501.
Experiments in Stimulation of Separate Elements of Heart Muscle. F. Schellong and F. Tiemann.—p. 515.
Epinephrine and Basal Metabolism. Abderhalden and Gellhorn.—p. 523.
Foreign Body Reflex in the Eye. O. Weiss.—p. 535.
Plurisegmental Innervation. W. Quednau.—p. 541.
Local White Phenomenon under Colored Lighting. S. Krauss.—p. 547.
The State of Calcium in the Serum. R. Mond and H. Netter.—p. 558.
Alkali and Acid Muscle Reactions: Fuchsin Stain. Wetochin.—p. 569.
Elimination Experiments on Vowel Sounds. K. Eisenberg.—p. 574.
Suprarenalectomy and Muscle Strength. K. Hirase.—p. 582.
A Hormone of Heart Action. L. Haberlandt.—p. 587.
The *p*H of the Urine in the Course of One Day. E. Rannenberg.—p. 601.
Differentiating Tissue Constituents by Their Combining Power with Congo Red. Kreidl and E. Nirenstein.—p. 642.
Muscle Shortening and Contraction. Uexküll and Stromberger.—p. 645.
The Skin and the Electrocardiogram. W. Luerg.—p. 649.

Experimental Studies in Growth.—In the first of these articles Junkersdorf and Gottschalk review the literature on the subject of the growth impulse. This impulse is determined by heredity, and to a lesser extent by the nutrition of the mother during gestation; after birth it cannot be altered. It can be checked by deficiency in nutrition, but cannot be increased beyond its physiologic limit or changed in direction. In the second article, they report the results of experiments on thirty-seven pups of eight litters. The animals were weighed at birth and at various intervals. They were killed at different ages and the individual organs weighed. Thus weight curves were constructed for each organ. For the liver, kidneys and thyroid the weight of the organ compared with the total weight of the animal was highest at birth. For the heart and suprarenals, it varied only within the normal limits for the adult. The relative weight of the spleen was low at birth and highest at three weeks. That of the thymus was constant for the first two weeks, rose just before the onset of intensive growth, and declined after the suckling period of four weeks. The chemical changes during growth will be reported in a later paper. These experiments were made possible by the support of the Rockefeller Foundation.

Experiments in Producing Hyperthyroidism in Dogs.—Mark and Stradal report that oral or subcutaneous administration of an almost iodine-free thyroid preparation to seven dogs caused no complete hyperthyroidism.

Archiv für path. Anatomie und Physiologie, Berlin

260: 521-855 (April 30) 1926

*Arthritis Deformans. J. Heine.—p. 521.
*Ranke's Primary Complex in Tuberculosis. P. Schürmann.—p. 664.

Arthritis Deformans.—In this comprehensive work the pathologic changes in the various structures of joints with deforming arthritis are described and illustrated from the gross and microscopic specimen, and their genesis discussed. Heine tabulates material from 1,002 cadavers and presents detailed statistics on the incidence and manifestations of the disease in the individual joints for the decades from 15 to 95 years, and for each sex separately. The order of frequency in which he found the larger joints involved was the knee, acromioclavicular, elbow, hip, and shoulder. Up to the seventieth year, the first metatarsophalangeal joint came next to the knee. Spondylitis deformans most often involved the thoracic spine alone or the lower thoracic and upper lumbar. The various theories of etiology and pathogenesis are critically considered, but he refrains from offering a new one. Tables are given showing the incidence of degenerative joint lesions, arteriosclerosis and osteoporosis of the ribs in 100 cases of carcinoma and fifty cases of tuberculosis and in controls. These do not bear out Rimann's theory, which would make carcinoma and tuberculosis responsible for deforming arthritis, but tend rather to suggest an inhibiting influence on the part of the carcinoma diathesis and of tuberculosis on these three diseases of advanced age.

The Earliest Anatomic Manifestation of Primary Tuberculous Infection.—In this work of nearly 200 pages Schürmann treats of the primary lesion of tuberculosis in its historical aspect and in its anatomic manifestation. In animal experiments, in observations on Jewish infants who contracted tuberculosis from circumcision under circumstances comparable to animal experimentation, in the medical literature for 150 years and in special researches, he finds the view confirmed that the earliest anatomic manifestation of tuberculosis is extensive disease of the lymph nodes, appearing in fresh cases as collections of epithelioid cells, a little later as caseation and in old cases as calcification, with much slighter disease of the area drained. This corresponds to Ranke's "primary complex." In 1,000 cadavers Schürmann found anatomic tuberculosis in 88.9 per cent; in 96.17 per cent of these he was able to demonstrate the above described lesion. In 784 of the 855 cases in which this primary complex was found, it was single, in seventy-one, multiple. The lung was the site in 80.12 per cent. The primary complex was pathognomonic for the primary infection in 85-90 per cent of his entire material.

Archiv für Psychiatrie und Nervenkr., Berlin

77: 179-320 (May 20) 1926

Circular Insanity in the Non-Pyknic Type. K. Kolle.—p. 183.
Time Factor and Conjugate Deviation in Epilepsy. Schnell.—p. 239.
*Eugenics of Marriage and Pregnancy. S. Hirschfeld.—p. 257.
*Sterilization for Eugenic Reasons. E. Kohls.—p. 285.
Eye Muscle Spasm Following Encephalitis. M. Fischer.—p. 303.
Influence of Shock Treatment on Insanity. J. Schuster.—p. 314.
Interpupillary Distance as Gage of Degeneracy. Becker.—p. 317.

Eugenics of Marriage and Pregnancy from the Standpoint of Psychiatry and Neurology.—Hirschfeld reviews the literature. As regards practical eugenics, he takes a conservative standpoint, for our present knowledge does not permit us to foretell with certainty the fate of any individual child as regards inheritance. Heredity is not now given the superlatively important place which it formerly held in the genesis of mental diseases. Injury to or infection of the germ cell or the embryo is not to be confused with pathologic mutation of the germ plasm. While the former may seriously damage the child's physical and mental constitution, their influence extends only to the one generation and has nothing to do with heredity.

Sterilization for Prevention of Mentally Inferior Offspring.—Kohls reviews opinions, statistics and legislation (the latter especially in America) on sterilization of the unfit. It seems to be unquestionably justified in Huntington's chorea, but can be considered only in selected cases of schizophrenia, manic depressive insanity, epilepsy, alcoholism, feeblemindedness or criminal tendency. Of these the indication will be found most frequently in the feebleminded. The constitutional psychopathies must be excluded for lack of sufficient knowledge as to their origin.

Beiträge zur Klinik der Tuberkulose, Berlin

63: 255-383 (April 20) 1926

*Bronchiectasia in Children. K. Klare and P. Reusse.—p. 255.
*Tuberculosis of Mesenteric Nodes. S. Klein.—p. 268.
Epituberculous Infiltration. H. Schlack.—p. 275.
*Metabolism in Tuberculosis. N. Róth.—p. 292.
Fibrin Balls in Pneumothorax. Klinkowstein and Belajewa.—p. 313.
Histogenesis of Liver Tubercle. H. Schleussing.—p. 317.
*Iodized Oil in the Lungs. H. W. Knipping and W. Ponndorf.—p. 329.
Serial Sections of the Thorax. E. Müller.—p. 360.
Pulmonary Tuberculosis with Gastric Ulcer. F. Loben.—p. 370.
*Arsphenamine in Pulmonary Tuberculosis. W. Landau.—p. 373.
Spontaneous Pneumothorax. E. Werner.—p. 379.

Bronchiectasia in Children.—Klare and Reusse found bronchiectasia comparatively frequent in children. Bronchopneumonia, pleurisy and bronchiolitis are predisposing causes. Clinical restitution is possible with beginning cases; the prognosis is unfavorable if the changes are extensive.

Tuberculosis of Mesenteric Nodes.—Klein deals with isolated tuberculosis of the mesenteric lymph nodes. The enlarged nodes are palpable, although sometimes only with difficulty. The ileocecal region is a point of predilection. The Pirquet test is strongly positive. The prognosis is comparatively good. Roentgen-ray treatment is advisable.

Metabolism in Tuberculosis.—Róth reviews all the metabolic aspects of tuberculosis and their consequences for treatment. He confirms the increased oxygen consumption in grave cases.

Iodized Oil in the Lungs.—Knipping and Ponndorf found hardly any indications of resorption of iodized oil by the lungs. It is removed partly by coughing, partly by swallowing.

Arsphenamine in Pulmonary Tuberculosis and Gangrene.—Landau admits that arsphenamine may sometimes cause an exacerbation of pulmonary tuberculosis. On the other hand, he had excellent results with it in a case of gangrene of the lung complicating a pulmonary tuberculosis. He advises to give arsphenamine a trial in every case of pulmonary gangrene.

Deutsche medizinische Wochenschrift, Berlin

52: 901-942 (May 28) 1926

Efficient Obstetrics. H. Sellheim.—p. 901.
*Blood and Ultraviolet Rays. E. v. Schubert.—p. 903.
*Herpes Zoster and Internal Diseases. J. Severin.—p. 906.
Deep Lipomas. H. Schütz.—p. 908 .
*Hiccup in Infants. M. Cohn.—p. 909.
Refractometry with Abderhalden's Test. J. Schnupp.—p. 913.
Blood Transfusion. P. Clairmont and M. A. Müller.—p. 914.
Therapeutic Passive Hyperemia. W. Löhr.—p. 920.
Gastrocolonic Fistula. Kuttner.—p. 922.
Scarlatinal Lymphangitis. E. Rüscher.—p. 922.
*The Pituitary and Gastric Mechanism. A. Elkeles.—p. 922.
Bismuth as Diuretic. R. A. Pavlovic.—p. 923.
Health Work for Adolescents. Gettkant.—p. 924.
Physicians' Age Insurance. R. Oppenheimer.—p. 925. C'cn.
Comment. O. Salomon.—p. 926.
Medicine in the Novel, "Laudin." Gumprecht.—p. 927.

Blood and Ultraviolet Rays.—Schubert tested the amount of absorption of ultraviolet rays by comparing the reflected rays with the original radiation. A skin which had been rendered anemic absorbed much less than normal skin. This is due to the strong absorption of the rays (especially of wave lengths below 302) by the hemoglobin. It is probable that this is physiologically important. It ranks hemoglobin close to chlorophyll, for which the importance of light is fully established.

Herpes Zoster and Internal Diseases.—Severin observed a homolateral herpes zoster of the eleventh and twelfth thoracic segments in one case of colic in hydronephrosis, and a herpes of the tenth to the twelfth segments in another. Gallstones were associated in another patient with herpes zoster of the right ninth segment. One patient with contracted kidneys and angina pectoris had herpes of the second to the fifth left thoracic segments.

Hiccup in Infants.—Cohn points out that hiccup occurs even during intra-uterine life. Cooling of the skin and too rapid drinking are provocative causes. Popular remedies, such as putting sugar on the tongue, may help. The sneezing reflex, or provocation of crying, are efficient remedies.

The Pituitary and Gastric Mechanism.—Elkeles found that injection of pituitary extracts inhibited the gastric secretion of acid, but not of chlorides.

Frankfurter Zeitschrift für Pathologie, Munich

33: 327-538, 1926

Pathologic Histology of Glanders. H. Spinner.—p. 327.
Pathogenesis of Large Cysts of the Spleen. R. Howald.—p. 349.
Primary Melanoma of the Spinal Cord. H. J. Schmid.—p. 372.
Parathyroid Hemorrhages in Infants; Spasmophilia. Danisch.—p. 380.
Gastric Mucosa and Chronic Ulcer. F. Büchner and C. Ruf.—p. 406.
Hepatic Cystadenoma of Bile Duct Origin. A. Kelemen.—p. 423.
Influencing the Growth of the Uterus. Jaffé and Ranssweiler.—p. 458.
*Rupture of Cerebral Blood Vessels. H. Lampert and W. Müller.—p. 471.
Spinal Curvatures in Rachischisis. H. Lehmann-Facius.—p. 478.
Case of Carcinoma of the Thymus. H. Voges.—p. 501.
Distribution of Scarlet Red Injected into Vein. Oselladore.—p. 507.
*Congenital Atresia of the Bile Ducts. H. Schuster.—p. 513.
*Periarteritis Nodosa. I. Franz.—p. 521.

The Pressure Required to Produce Rupture of Blood Vessels in Situ in the Brain in Cadavers.—Lampert and Müller attempted to obtain light on the relations between apoplexy and hypertonia by forcing fluid into the cerebral vessels through the common carotid under various pressures. They found that in the cadaver the pressure required to burst a healthy cerebral blood vessel was represented in the carotid by a minimal pressure three or four times as great as the highest blood pressure observed in the carotid in the living subject. Rupture of a vessel occurred only where hypertonia or syphilis of the vessels had been clinically determined, but other factors were evidently necessary, for not in all cadavers thus affected did a like pressure produce rupture. The regions of the basal ganglia and the medulla oblongata were the most frequent sites of vessel rupture.

Congenital Atresia of the Bile Ducts.—From the necropsy examination in two cases in male infants of 5 weeks and 5 months, respectively, Schuster concludes that the cause of congenital atresia of the bile ducts is a chronic ascending inflammation of unknown nature. Bacteria were not found, although in the younger child the process was still acute. About one hundred cases of this condition are reported in the literature.

Periarteritis Nodosa: Report of Five Cases.—Franz failed in transmitting this disease to guinea pigs by implantation of diseased tissue nor could she discover bacteria in microscopic sections. She inclines to the belief that the condition is not caused by a specific microorganism, but may arise secondarily to any infection.

Klinische Wochenschrift, Berlin

5: 969-1016 (May 28) 1926

Pulmonary Tuberculosis. H. Ulrici.—p. 969.
Abderhalden's Test. L. R. Grote.—p. 971.
Action of Thymus. B. Romeis.—p. 975.
*Thallium and Tactile Hairs. A. Buschke and B. Peiser.—p. 977.
*Vaginal Cycle. B. Zondek and S. Aschheim.—p. 979.
*Determination of Heart Output. W. Mobitz.—p. 985.
*Spastic Dysmenorrhea. E. Vogt.—p. 986.
*Urobilin in the New-Born. M. Winternitz.—p. 988.
*Enterococci in Gallbladder. K. Meyer and W. Löwenberg.—p. 989.
Hyperventilation and Epilepsy. H. Pfeiffer et al.—p. 992.
Liver Function Test. J. Halberkann and H. Kähler.—p. 992.
Angina with Lymphoblastosis. J. Preuss.—p. 993.
Dermatoses in Children. O. Ullrich.—p. 994.
Paracelsus. G. Sticker.—p. 997. C'td.
Diathermy in Otorhinology. Hamm.—p. 1015.

Thallium and Tactile Hairs.—Buschke and Peiser fed small doses (0.12 mg.) of thallium acetate to rats. The animals lost all their hair except the tactile hairs. The latter are not innervated by the sympathetic, and their musculi arrectores are striated. This speaks for the action of thallium on the sympathetic. Analogous hairs occur in man in symmetrical moles of the face. The middle part of the eyebrows and the moustache might have a similar significance.

Vaginal Cycle.—Zondek and Aschheim publish details of the technic necessary for utilizing the vagina of castrated white mice for standardization of the ovarian hormone. The ovary must be really removed in toto. The vaginal smears should be made with a platinum loop, avoiding the vestibulum. Otherwise, there will be always some epithelial scales present. Wiping off the external parts only makes it worse. Winding cotton around the head of a pin—as used by Loewe—adds the superficial cells of the finger to the picture, and may thus produce a semblance of estrus. The percentage of the cells does not mean much even with good technic. The injection either produces estrus or it does not.

Determination of Heart Output.—Mobitz uses a slight modification of Henderson and Haggard's ethyl iodide method for determination of the heart-beat volume.

Spastic Dysmenorrhea.—Vogt injects a small amount of vegetable protein intravenously in spastic dysmenorrhea during the colic. It decreases the irritability of the sympathetic. Failures indicate some mental cause for the dysmenorrhea.

Urobilin in the New-Born.—Winternitz confirms the presence of urobilin in the feces, urine, bile and intestinal contents of some new-born infants. It originates in the mother, and is only transmitted to the fetus. A few hours after birth, bacteria invade the intestine of the new-born and cause true autochthonous urobilin formation. There was no evidence of any extra-enteral production of urobilin.

Enterococci in Gallbladder.—Meyer and Löwenberg injected rabbits intravenously with cultures of enterococci. They found them always in the gallbladder. Hemolytic and viridans strains of streptococci showed no such predilection. They believe that most of the alleged streptococci obtained from bile and the biliary passages—including the cases of Schottmüller's cholangitis lenta—were enterococci.

Medizinische Klinik, Berlin

22: 833-870 (May 28) 1926

Pharmacology of Mixtures. E. Bürgi.—p. 833.
*Goiter Heart. A. W. Meyer and E. Sulger.—p. 838.
Endaortitis Lenta. W. Ceelen.—p. 842.
*Endoscopy in Constipation. L. v. Aldor.—p. 843.
Arachnodactylia. H. Schlack.—p. 845.
*Paradoxic Action of Insulin. E. Foerster.—p. 846.
Paratyphoid Sepsis. F. Lehr.—p. 848.
*Auscultation of Aorta. W. Lorwenstein.—p. 849.
Treatment of Varicose Veins. W. Noher.—p. 849.
*Sulphur Baths. E. Maliwa.—p. 851.
Survey on Surgery. Kroll.—p. 856. C'td.
Health Certificates. M. Hirsch.—p. 867.
Tuberculosis of Ear and Upper Air Passages. F. Blumenfeld and O. Piffl. Supplement.—pp. 1-40.

Goiter Heart.—Meyer and Sulger found, among ninety goiter patients, thirty-nine with enlargement of the heart. Both ventricles were usually affected. The hypertrophy of the heart was more frequently due to stenosis of the trachea than to hyperthyroidism. Reexamination of the patients who had been operated on revealed a persistence of the hypertrophy in all but seven cases. Some (fourteen) of the others—including those who had had normal hearts previously—had a larger heart two or three years after the intervention than they had had before.

Endoscopy in Constipation.—Aldor noticed that the sigmoidoscope could be introduced quite easily and far in patients with grave hypotonic constipation. The mucous membrane was smooth and without folds. He had good results in such patients with subcutaneous injections of 1-2 cc. of pituitary extracts. The injection had to be repeated once or twice a week.

Paradoxic Action of Insulin.—Foerster treated a diabetic patient who had a history of hives after injections of milk. The patient became sugar-free after insulin. A week later he began to excrete increasing amounts of sugar and acetone. The condition grew gradually worse in spite of increased doses of insulin (up to 160 units within four hours), to which the patient reacted with mild hives. He improved after the insulin was discontinued and oatmeal diet instituted.

Auscultation of Aorta.—Loewenstein recommends auscultation of the second aortic sound in the triangle between the heads of the right sternocleidomastoid muscle and the clavicle.

Sulphur Baths.—Maliwa injected a bismuth salt subcutaneously in mice, which he then partially submerged in water containing hydrogen sulphide. The bismuth deposit under the skin was blackened as evidence of resorption of sulphur by the skin. The breath of the mice also contained hydrogen sulphide, for it blackened a paper moistened with a solution of lead acetate.

22: 871-908 (June 4) 1926

Ovariogenous Hemorrhages. J. Novak.—p. 871.
Balneotherapy in Neuroses. M. Löwy.—p. 875.
"Exposure or Predisposition?" F. Reiche.—p. 879.
*Tabetic Symptoms After Ergotamine Treatment. H. Panter.—p. 880.
Cheyne-Stokes and Tachycardia. S. Wassermann.—p. 881.
*Methenamine in Encephalitis. A. Simonena.—p. 883.
Taxis in Incarcerated Hernia. G. Neugebauer.—p. 885.
Ampule for Blood Injections. G. Ockel.—p. 886.
*Injury of Cornea from Silver Nitrate. J. Fejér.—p. 886.
Megacolon and Megasigmoid. Schemmel.—p. 887.
Chromoscopy of the Stomach. K. Glaessner.—p. 887.
Employers' Liability for Hysteria. H. Engel.—p. 889.
Diuretic Action of Biliary Acids. R. Semler.—p. 891.
Survey on Surgery. Kroll.—p. 895. C'en.
The Decree on Marriage Certificates. M. Hirsch.—p. 905. C'en.

Tabetic Symptoms After Ergotamine Treatment.—Panter gave an exophthalmic goiter patient for two days three daily injections of 0.5 mg. of ergotamine tartrate—supplementary to quinine and digitalis. He resected the goiter on the third day, and repeated on the fourth the same dosage of ergotamine. He gave only one injection on the fifth day. At this time the patient's pupils were miotic and did not react. The patellar and other tendon reflexes were also abolished. This condition lasted for ten days. The reflexes became gradually normal in the following week.

Methenamine in Encephalitis.—Simonena had good results in the lethargic stage of encephalitis with daily intravenous injections of 5 cc. of a 40 per cent solution of methenamine for about ten days.

Injury of Cornea from Silver Nitrate.—Fejér observed a case of grave injury to the conjunctiva of a new-born infant. The midwife had used by mistake a 10 per cent solution of silver nitrate for instillation.

Mitteil. u. allg. Pathol. u. path. Anat., Japan

2: 407-642 (April 18) 1926

*Osgood-Schlatter's Disease. S. Sekiguchi and O. Tashiro.—p. 407.
*Diphtheritic Renal Disease. T. Dake.—p. 435.
*Renal Disease from Typhoid and Paratyphoid B Toxins. Id.—p. 471.
*Acute Renal Diseases from Cocci. T. Dake.—p. 495.
*Renal Disease from Uranyl Nitrate. T. Dake.—p. 519.
Solitary Serous Cysts of the Kidney. M. Koike.—p. 557.
Scar Carcinoma. M. Iwamoto.—p. 573.
Primary Malignant Papilloma of the Renal Pelvis. M. Muto.—p. 599.
*Pseudomyxoma of the Peritoneum. W. Senokuchi.—p. 617.

Apophyseopathia: Osgood-Schlatter's Disease.—Sekiguchi and Tashiro review, from the pathogenic standpoint, thirty-three cases of Osgood-Schlatter's disease of the tubercle of the tibia, in which operation was performed. Histologic examination failed to show any traumatic change in the projection of the tubercle, or any signs of inflammation, and the search for bacteria was negative in result. None of their cases presented any signs of late rickets or of endocrine disturbance. Spur formation at the site of insertion of the patellar ligament was never seen in early cases. Sekiguchi and Tashiro believe that the condition is due to a local growth anomaly of the epiphyseal line; trauma may stir up the process. The article is illustrated and is followed by a comprehensive bibliography.

Acute Nephropathies from Bacterial Toxins.—In this series of four studies Dake examined the blood and urine, especially for chlorine and nitrogen, of rabbits inoculated with various bacterial toxins or bacteria or injected with a chemical. The experiments confirm Ludwig's theory of urinary secretion. As to the two theories of the origin of the increase of residual nitrogen in the blood, the renal retention theory and the extrarenal theory (increased catabolism of body protein, disturbance of liver function, etc.), the experiments show both mechanisms working together. The experiments confirm the extrarenal cause of renal edema. All poisons attack the extrarenal vessels directly. Dake found heightened sensitivity to various cocci and to diphtheria bacilli in rabbits previously treated with the corresponding bacteria or toxins, but with typhoid and paratyphoid B bacilli the opposite was true. This agrees with clinical experience; in tonsillitis, scarlet fever and diphtheria, there is an incubation period, but in disease of the kidney accompanying typhoid or paratyphoid no such incubation is apparent. The articles contain numerous tables, illustrations and full bibliographies.

Pseudomyxoma of the Peritoneum in a Case of Primary Adenocarcinoma of the Common Bile Duct.—From a table giving a brief abstract of twenty-eight cases of pseudomyxoma of the peritoneum, aside from those originating in ruptured ovarian cystomas, Senokuchi's case appears to be unique, in that the primary focus was an adenocarcinoma of the common bile duct. In most of the other cases, the primary focus was in the appendix. Necropsy revealed enormous masses of gelatinous material filling the entire peritoneal cavity. Numerous cysts containing gelatinous masses were found in and around the spleen, and small cysts in the appendix and small intestine. In the duodenum metastatic nodules were present.

Monatsschrift für Kinderheilkunde, Leipzig

32: 193-288 (May) 1926

*Bacteriotherapy of Dyspepsia. A. Popowa.—p. 193.
Carbohydrate Metabolism and Toxicosis. Fedynski et al.—p. 205.
Respiration in Encephalitis. C. Behmack.—p. 226.
"Postinfluenzal Dilatation of the Heart." D. Lebedev.—p. 237.
*Poisoning with Sulphur Ointment. F. Basch.—p. 239.
Surgery of Pylorostenosis. Schulte.—p. 243.

*Skin Hypersensitiveness. H. Schlack.—p. 248.
*Exfoliating Dermatitis. W. Szarka.—p. 253.
*Thrombosis of Sinus. O. Herz.—p. 256.
"Liver Function Tests." Duzár and Hensch.—p. 265.
*Insulin in Ketonuria. R. Freise and H. Boeringer.—p. 269.

Bacteriotherapy of Dyspepsia.—Popowa attributes to the endogenous bacterial flora an important rôle in dyspepsia of infants and children. She used with great success a mixture of *Bacillus bulgaricus*, yeast and carbohydrates in milk.

Poisoning with Sulphur Ointment.—Basch observed several deaths among infants treated for scabies with a 10 per cent sulphur ointment. The infants became dyspeptic, developed fever, and died in one to three weeks. Colitis and fatty infiltration of the liver were found at necropsy. He attributes the toxic effects of sulphur in infants to the fact that the surface area of their body is much larger in proportion to the weight than in adults. Scratches and other lesions of the skin also contribute to the resorption. Experiments on animals indicate that the absorbed sulphur is converted into hydrogen sulphide.

Skin Hypersensitiveness.—Schlack irritated the skin in 204 children with a toothbrush soaked in oil of turpentine, formaldehyde or a decoction of arnica. Children with the exudative diathesis or with scrofula presented an abnormally strong reaction four times more frequently than the rest. Yet the reaction was also excessive in some of the controls. Tuberculosis alone did not change the reactivity.

Exfoliating Dermatitis.—Szarka observed an exfoliating dermatitis in a twin nine days after her sister had developed a typical pemphigus of the new-born. She attributes both diseases to the same micro-organisms (staphylococcus aureus and streptococci). This confirms the opinion of the clinicians who regard exfoliative dermatitis as a grave form of pemphigus.

Thrombosis of Sinus.—Herz incriminates injuries suffered during birth for the early cases of otitis media in infants. The hemorrhage entails a predisposition to suppuration. Thrombosis of a sinus follows, but the disease becomes manifest only after formation of metastatic abscesses in the lungs and empyema.

Insulin in Ketonuria.—Freise and Boeringer emphasize the occurrence of ketonuria in children kept sugar-free with insulin. They explain it by the lowering of the blood sugar. Ketonuria without hyperglycemia is an indication for addition of carbohydrates or for a decrease of the dose of insulin.

Münchener medizinische Wochenschrift, Munich

73: 895-936 (May 28) 1926

*Perspiration. O. Moog and K. Buchheister.—p. 895.
Vaccine Treatment of Infections. Hilgermann.—p. 898.
*Pituitary Cachexia. Reye.—p. 902.
Sepsis After Infectious Sore Throat. H. Lenhartz.—p. 906.
*Zinc Chloride in Cancer. Steinthal.—p. 908.
*Hour-Glass Stomach. M. M. Gubergritz.—p. 909.
The Passing of Chlorosis. K. Classen.—p. 911.
Puerperal Fever. H. Schmidt.—p. 912.
Vaccination and General Paralysis. Schükry and Kerim.—p. 915.
Measuring Tables. Von Eickstedt.—p. 915.
Balneotherapy and Climatotherapy. II. H. Westkott.—p. 916.
Chemistry of Proteins. W. Grassmann.—p. 918.

Perspiration.—Moog and Buchheister used Jürgensen's method of microscopic observation of sweat secretion. They confirm the permanent secretion on hands and feet, but not on other parts of the body except during excitement of the subject or after pilocarpine injections. Atropine inhibits the secretion more effectually than epinephrine. Histamine has no influence. Passive hyperemia inhibits the secretion. Some of their observations can be explained only by assuming a direct perspiration of water through the skin—added to the insensible secretion of the sweat glands.

Pituitary Cachexia.—Reye reports the histories of three women who became apathetic after delivery, and presented a syndrome resembling to a certain extent myxedema: low metabolism, white or yellowish skin, swollen face, loss of teeth, eyebrows and all the hair on trunk and extremities, amenorrhea, low blood pressure and temperature, drowsiness and chilly feeling. One of them reacted to administration of thyroid by symptoms of hyperthyroidism. Injection and administration of preparations from the anterior lobe of the pituitary were followed by a remarkable improvement.

Zinc Chloride in Cancer.—Steinthal recommends cauterization with zinc chloride in treatment of inoperable carcinomas.

Hour-Glass Stomach.—Gubergritz determines the lower border of the splashing phenomenon of the stomach, and repeats the examination after half an hour. He found a shifting of the border downward and to the right in nine patients with hour-glass stomach. Atropine shortens the time of the shifting of the level.

Strahlentherapie, Berlin

22: 379-577, 1926

Ion Gage of Roentgen Ray Intensity. O. Gaertner.—p. 379.
Distribution of Radiant Energy from Radium. Mallet and Coliez.—p. 417.
The Roentgen Unit as Energy Unit. L. Grebe.—p. 438.
The Roentgen Photometer. H. Wintz and W. Rump.—p. 444.
Qualities of Roentgen Rays, Biologic Action. Wintz and Rump.—p. 451.
Biologically Equivalent Radium and Roentgen Rays. Schneider.—p. 460.
The Roentgen Ray and the Human Organism. P. Lapatsanis.—p. 484.
Hyperemia as Sensitizer in Roentgen Irradiation. W. Wynen.—p. 503.
Sensitization of Skin to Ultraviolet Light. Linser and Kropatsch.—p. 514.
Early Effects of Roentgen Rays on the Skin. O. Hilsnitz.—p. 525.
*Roentgen Rays and Blood Cholesterol. Levy-Dorn and Burgheim.—p. 538.
*Treatment of Perimandibular Phlegmon. F. Pordes.—p. 550.
Uterine Cancer Made Operable by Irradiation. H. Seidemann.—p. 554.
Safety Device for Roentgen Ray Filter. Irle and Bergerhoff.—p. 562.
Apparatus for Irradiation of Cancer of Cervix. T. Brandess.—p. 569.
Short Wave Ultraviolet Rays. F. Dannmeyer et al.—p. 578.

Hour-Glass Stomach.—Gubergritz determines the lower border of the splashing phenomenon of the stomach, and repeats the examination after half an hour. He found a shifting of the border downward and to the right in nine patients with hour-glass stomach. Atropine shortens the time of the shifting of the level.

Zinc Chloride in Cancer.—Steinthal recommends cauterization with zinc chloride in treatment of inoperable carcinomas.

Bacteriotherapy of Dyspepsia.—Popowa attributes to the endogenous bacterial flora an important rôle in dyspepsia of infants and children. She used with great success a mixture of *Bacillus bulgaricus*, yeast and carbohydrates in milk.

Poisoning with Sulphur Ointment.—Basch observed several deaths among infants treated for scabies with a 10 per cent sulphur ointment. The infants became dyspeptic, developed fever, and died in one to three weeks. Colitis and fatty infiltration of the liver were found at necropsy. He attributes the toxic effects of sulphur in infants to the fact that the surface area of their body is much larger in proportion to the weight than in adults. Scratches and other lesions of the skin also contribute to the resorption. Experiments on animals indicate that the absorbed sulphur is converted into hydrogen sulphide.

Skin Hypersensitiveness.—Schlack irritated the skin in 204 children with a toothbrush soaked in oil of turpentine, formaldehyde or a decoction of arnica. Children with the exudative diathesis or with scrofula presented an abnormally strong reaction four times more frequently than the rest. Yet the reaction was also excessive in some of the controls. Tuberculosis alone did not change the reactivity.

Exfoliating Dermatitis.—Szarka observed an exfoliating dermatitis in a twin nine days after her sister had developed a typical pemphigus of the new-born. She attributes both diseases to the same micro-organisms (staphylococcus aureus and streptococci). This confirms the opinion of the clinicians who regard exfoliative dermatitis as a grave form of pemphigus.

Thrombosis of Sinus.—Herz incriminates injuries suffered during birth for the early cases of otitis media in infants. The hemorrhage entails a predisposition to suppuration. Thrombosis of a sinus follows, but the disease becomes manifest only after formation of metastatic abscesses in the lungs and empyema.

Insulin in Ketonuria.—Freise and Boeringer emphasize the occurrence of ketonuria in children kept sugar-free with insulin. They explain it by the lowering of the blood sugar. Ketonuria without hyperglycemia is an indication for addition of carbohydrates or for a decrease of the dose of insulin.

Münchener medizinische Wochenschrift, Munich

73: 895-936 (May 28) 1926

*Perspiration. O. Moog and K. Buchheister.—p. 895.
Vaccine Treatment of Infections. Hilgermann.—p. 898.
*Pituitary Cachexia. Reye.—p. 902.
Sepsis After Infectious Sore Throat. H. Lenhartz.—p. 906.
*Zinc Chloride in Cancer. Steinthal.—p. 908.
*Hour-Glass Stomach. M. M. Gubergritz.—p. 909.
The Passing of Chlorosis. K. Classen.—p. 911.
Puerperal Fever. H. Schmidt.—p. 912.
Vaccination and General Paralysis. Schükry and Kerim.—p. 915.
Measuring Tables. Von Eickstedt.—p. 915.
Balneotherapy and Climatotherapy. II. H. Westkott.—p. 916.
Chemistry of Proteins. W. Grassmann.—p. 918.

Perspiration.—Moog and Buchheister used Jürgensen's method of microscopic observation of sweat secretion. They confirm the permanent secretion on hands and feet, but not on other parts of the body except during excitement of the subject or after pilocarpine injections. Atropine inhibits the secretion more effectually than epinephrine. Histamine has no influence. Passive hyperemia inhibits the secretion. Some of their observations can be explained only by assuming a direct perspiration of water through the skin—added to the insensible secretion of the sweat glands.

Pituitary Cachexia.—Reye reports the histories of three women who became apathetic after delivery, and presented a syndrome resembling to a certain extent myxedema: low metabolism, white or yellowish skin, swollen face, loss of teeth, eyebrows and all the hair on trunk and extremities, amenorrhea, low blood pressure and temperature, drowsiness and chilly feeling. One of them reacted to administration of thyroid by symptoms of hyperthyroidism. Injection and administration of preparations from the anterior lobe of the pituitary were followed by a remarkable improvement.

Zinc Chloride in Cancer.—Steinthal recommends cauterization with zinc chloride in treatment of inoperable carcinomas.

Hour-Glass Stomach.—Gubergritz determines the lower border of the splashing phenomenon of the stomach, and repeats the examination after half an hour. He found a shifting of the border downward and to the right in nine patients with hour-glass stomach. Atropine shortens the time of the shifting of the level.

Strahlentherapie, Berlin

22: 379-577, 1926

Ion Gage of Roentgen Ray Intensity. O. Gaertner.—p. 379.
Distribution of Radiant Energy from Radium. Mallet and Coliez.—p. 417.
The Roentgen Unit as Energy Unit. L. Grebe.—p. 438.
The Roentgen Photometer. H. Wintz and W. Rump.—p. 444.
Qualities of Roentgen Rays, Biologic Action. Wintz and Rump.—p. 451.
Biologically Equivalent Radium and Roentgen Rays. Schneider.—p. 460.
The Roentgen Ray and the Human Organism. P. Lapatsanis.—p. 484.
Hyperemia as Sensitizer in Roentgen Irradiation. W. Wynen.—p. 503.
Sensitization of Skin to Ultraviolet Light. Linser and Kropatsch.—p. 514.
Early Effects of Roentgen Rays on the Skin. O. Hilsnitz.—p. 525.
*Roentgen Rays and Blood Cholesterol. Levy-Dorn and Burgheim.—p. 538.
*Treatment of Perimandibular Phlegmon. F. Pordes.—p. 550.
Uterine Cancer Made Operable by Irradiation. H. Seidemann.—p. 554.
Safety Device for Roentgen Ray Filter. Irle and Bergerhoff.—p. 562.
Apparatus for Irradiation of Cancer of Cervix. T. Brandess.—p. 569.
Short Wave Ultraviolet Rays. F. Dannmeyer et al.—p. 578.

The Influence of Roentgen Irradiation on the Cholesterol Content of the Blood in Health and Disease.—The following observations made by Levy-Dorn and Burgheim are offered with a view to their utilization in the diagnosis of malignant tumors. In a large healthy dog and in patients with various pathologic conditions other than malignant tumors, roentgen irradiation was followed by a sudden fall, almost to the vanishing point, of the cholesterol content of the blood. In

patients with carcinoma or sarcoma, on the contrary, irradiation was followed by increase in the blood cholesterol, but only so long as the malignant tumor remained in the body. Roentgen sickness appears to depend on the cholesterol content of the blood. In forty-two carcinoma cases observed, there was no roentgen sickness. Postoperative irradiation, however, was followed by a sudden fall in blood cholesterol and by roentgen sickness. In carcinoma, before irradiation, the percental cholesterol content of the whole blood is less than that of the blood serum, while in other pathologic conditions the opposite is true.

Vital Indication for Roentgen-Ray Therapy in Perimandibular Phlegmon.—Pordes strongly recommends the roentgen ray in small doses in the treatment of perimandibular phlegmon. It has no prophylactic value.

Wiener klinische Wochenschrift, Vienna

39: 621-648 (May 27) 1926

*Angina Pectoris. J. Pal.—p. 621.
*Ulcers in Genital Prolapse. F. Kermauner.—p. 623.
*Neurotropic Viruses. R. Kraus and J. Takaki.—p. 624.
Insulin and Blood Catalase. G. Török.—p. 625.
"Sensitization to Roentgen Rays." E. Petry.—p. 631.
Tendencies in Dermatology. L. Arzt.—p. 634. C'cn.
*Prevention of Scoliosis. J. Hass.—p. 636.
"Experiments in Animals." A. Eiselsberg.—p. 639.
Roentgen Study of the Colon. Kienböck. Supplement.—pp. 1-10.

Angina Pectoris.—Pal injects in angina pectoris a derivative of atropine. He saw a few good results from paravertebral injections.

Ulcers in Genital Prolapse.—Kermauner attributes the ulcers in prolapse to rupture of the senile mucosas. They are not caused by a decubitus.

Neurotropic Viruses.—Kraus and Takaki applied the Ascoli technic of cocto-antigen in study of neurotropic viruses by the complement fixation method. Interesting results have been obtained in vaccinia, encephalitis, hydrophobia and herpes. The results indicate that the encephalitis observed recently in some vaccinated children was not caused by the vaccinia virus.

Prevention of Scoliosis.—Hass would begin with the infant. Too early sitting up and standing is dangerous. It is best to let the child creep. Carrying the child around is another cause of scoliosis. If the parents insist on it, they should not carry the child always on one arm. Flat mattresses in the school age are important. With beginning scoliosis, the children should lie on the concave side. Sitting all the time or carrying heavy loads at puberty should be avoided. A scoliotic child needs a physician, not a teacher of gymnastics.

39: 649-680 (June 3) 1926

Syphilitic Reactions. E. Epstein.—p. 649. C'td.
*Soft Skull in the New-Born. H. Abels.—p. 653.
*Simultaneous Normal and Ectopic Pregnancy. R. Stiglbauer.—p. 656.
*Hay-Fever. F. Hutter.—p. 657.
Urinary Infections. K. Sternbach.—p. 661.
"Chromodiagnosis of the Liver." Faltitschek and Krasso.—p. 662.
Tuberculosis Welfare Work in the Netherlands. O. Burkard.—p. 665.
Peptic Ulcer Versus Cancer. H. Finsterer.—p. 666.
Trichinosis. G. B. Gruber. Supplement.—pp. 1-19.

Soft Skull in the New-Born.—Abels examined 5,000 newborn infants—partly with control before birth—for the softening of the skull localized about 3 cm. above the lesser fontanel. He explains it by the pressure of the linea innominata on the head before birth. It never occurred with breech presentation. It was found in about every tenth first-born child, but only in every sixteenth of the children of multiparas. These children are usually underweight. In rare cases, the softening may be localized in other parts of the skull, with abnormal positions of the fetus.

Simultaneous Normal and Ectopic Pregnancy.—Stiglbauer removed one ovary with an ectopic pregnancy in a woman with a simultaneous intra-uterine pregnancy. The latter progressed to normal delivery.

Hay-Fever.—Hutter emphasizes the fact that cauterization of the nasal mucous membrane may sometimes prevent or alleviate attacks of hay-fever.

Zeitschrift für Kinderheilkunde, Berlin

41: 261-411 (June 2) 1926

*Buttermilk and Water Metabolism. W. Röckemann.—p. 261.
*The Physique of Diabetic Children. Priesel and Wagner.—p. 267.
Infection and Nutrition. S. Levy.—p. 279.
Diabetes in Children. W. Gottstein and A. Bohe.—p. 287.
*The Dick Test. E. Nobel and H. Orel.—p. 294.
*The Dick Test in Children. H. Frenkel and A. Margolis.—p. 302.
*Metabolism in Epilepsy. H. Vollmer and J. Serebrijski.—p. 314.
*Blood Chemistry in Pneumonia. Nassau and Pogorschelsky.—p. 326.
Sedimentation Speed After Pirquet Test. A. Trias.—p. 331.
Cystic Fibrous Osteitis. W. Tobler.—p. 334.
Mongolian Spots. M. Zarfl.—p. 356.
Protein Intake and Organic Acids. O. Budde.—p. 370.
Organic Acids in Urine. J. Brock.—p. 378.
Acute Polyarthritis with Chorea. K. Lepehne.—p. 394.
Chorea with Acute Polyarthritis. M. Pfaundler.—p. 397.
Pseudohypertrophy of the Pyramid. H. Baar.—p. 399.
Hemihypertrophy of the Face with Buphthalmos. H. Süss.—p. 404.
Seasons and Weight in Tuberculosis. H. Orel.—p. 409.
"Albumin Milk-Butter-Flour Mixture." K. Ochsenius.—p. 412.

Buttermilk and Water Metabolism.—Röckemann frequently observed an increased diuresis during administration of buttermilk. He explains it by the action of lactic acid on the colloids.

The Physique of Diabetic Children.—Priesel and Wagner studied the physique, growth and development of diabetic children. Anomalies of constitution were frequent. The development, including the sexual, of correctly treated diabetic children was normal. No difference was noted between the children who were treated with diet alone and those with addition of insulin. Both methods have, however, their strict indications.

The Dick Test.—Nobel and Orel applied the Dick test to ninety-seven children. Two of them contracted scarlet fever later. One of these—with an abortive scarlet fever—had been Dick negative. They mention another similar case, and conclude that the specificity of the reaction is questionable, even if the results of immunization are good.

The Dick Test in Children.—Frenkel and Margolis made Dick tests in 542 children and forty-four adults. They found the reaction specific. Only Dick-positive children contracted scarlet fever, and most of these became negative afterward. The results were independent of the Mantoux and Schick tests. Negative pseudoreactions probably indicate susceptibility. Serums from Dick-positive children may produce the blanching phenomenon.

Metabolism in Epilepsy.—Vollmer and Serebrijski made metabolism experiments on a boy, aged 6, with grave epilepsy. Seizures were more frequent with alkalization even with salt-poor diet. Acidosis worked better. Calcium chloride causes acidosis but increases the chlorine content of the serum. Calcium lactate was better. Theobromine sodium salicylate proved valuable in increasing the elimination of chlorine. The seizures were always preceded by low acidity of the urine, and were followed by increased acidity. They emphasize the possible individual differences.

Blood Chemistry in Pneumonia.—Nassau and Pogorschelsky found in fatal cases of bronchopneumonia in infants an increased concentration of potassium, and especially a decrease of dextrose in the blood. The blood calcium was lower in some of the children.

Zeitschrift für Tuberkulose, Leipzig

45: 177-272 (May) 1926

Paths of Infection. P. Huebschmann.—p. 177.
*Sanocrysin in Tuberculosis. J. Zadek and A. Sonnenfeld.—p. 182.
Sedimentation Speed and Sanocrysin. Katz and Leffkowitz.—p. 193.
Gold in Pulmonary Tuberculosis. K. Henius.—p. 199.
Treatment of Pulmonary Tuberculosis. E. Guth.—p. 206.
Serodiagnosis of Tuberculosis. H. Schulte-Tigges.—p. 212.

Sanocrysin in Pulmonary Tuberculosis.—Zadek and Sonnenfeld restrict the sanocrysin treatment to grave forms of productive exudative pulmonary tuberculosis, especially with cavities and recent clinical manifestations. Purely exudative caseous processes are less suitable. Fibrous or miliary forms were not influenced. Intestinal tuberculosis, cachexia, albuminuria and syphilis are contraindications.

Zeitschrift für urologische Chirurgie, Berlin

19: 253-395 (May 18) 1926

Caulk's Punch Operation for Small Prostates. G. van Houtum.—p. 253.
Operation for Deep Seated Ureteral Stones. W. Lemberger.—p. 259.
Pelvic Kidney. W. Dreyfus.—p. 277.
*Vital Imbibition by Mucosa of Urinary Tract. W. Suchow.—p. 297.
Pathologic Importance of Accessory Renal Vessels. R. Andler.—p. 305.
Herpes of the Bladder. J. Schiffmann.—p. 342.
Pathogenesis and Treatment of Ureterocele. J. Gottlieb.—p. 345.

Affinity of the Mucosa of the Urinary Apparatus for Colloidal Solutions.—Suchow's experiments demonstrate a remarkable affinity of the mucosa—especially of the bladder—for taking up and retaining a vital stain injected intravenously, while the same stain injected into the lumen does not penetrate into the mucosa. The experiments were made on rabbits, and they throw light on the therapeutic influencing of the mucosa by substances from the blood stream. The particles of the stain rapidly accumulated in the intercellular substance. In time they were resorbed and gradually disappeared. Colored plates show the accumulation of the dye (lithion-carmine) in the mucosa, even in half an hour after intravenous injection of 10 cc. per kilogram of a 2.5 per cent solution.

Zeitschrift für Urologie, Leipzig

20: 321-399, 1926

*Roentgenology of the Bladder. A. Fryszman.—p. 321.
*Technic for Pyloroscopy. W. Sternberg.—p. 329.
*Vaccine Therapy in Urology. A. v. Adler-Rácz.—p. 336.
Anesthesia of Urethra and Bladder. F. Schlagintweit.—p. 347.

Diagnosis of Calculi and Tumors in the Bladder.—Fryszman takes the roentgen-ray picture with the patient in the Trendelenburg position, in dubious cases, and expatiates on the numerous advantages of this position. It is particularly instructive with tumors, especially after the bladder has been filled with air. He gives illustrations of the technic and results of this pneumocystography.

Technic of Endoscopy.—Sternberg discusses the direct visual inspection of the pylorus as guided by the lessons learned from inspection of the bladder in women. He refers in particular to the danger of pushing in the wall with the tip of the instrument to form an artificial diverticulum, and how to avoid this.

Autogenous Vaccines in Urology.—Adler-Rácz has made a systematic study of vaccine therapy as applied in thirty cases, and emphasizes its great value in chronic pyelitis to ward off irreparable lesions. With gonococcal infection of the upper urinary passages, the vaccine clears this region of gonococci, but a complete clinical cure can be expected only if reinfection from the genitals can be warded off, and if the local changes are not too far advanced. In acute postgonorrheal infections, the vaccine rendered good service, but in chronic cases it had little action, as also when obstruction maintained the source of infection. The colon bacillus and the enterococcus were especially amenable to the vaccine therapy. Three women with acute gonococcal and mixed infection of the upper urinary passages were cured with the vaccine alone; it induced severe general and focal reactions (kidney colics), but the urine was freed from pus and bacteria. The lesions are more apt to be irreparable in the male, even when the gonococcus is banished by the vaccine.

Zentralblatt für innere Medizin, Leipzig

47: 497-528 (May 29) 1926

*Abdominal Purpura. Rehberg.—p. 498.
Hypertension and Extract from Gonads. E. Kylin.—p. 501.

Abdominal Purpura.—Rehberg's patient had had at puberty attacks of typical abdominal purpura: colics, melena, hematemesis, tenderness of the colon, swollen joints, purpura, and albuminuria. At that time he had cutaneous hemorrhages, and the condition relapsed four times. When the patient was 40 years old, the gastro-intestinal hemorrhages returned. The diagnosis was difficult because of the absence of skin hemorrhages. The blood platelets were not much diminished, but were fragile. The patient recovered after treatment with fresh vegetables and fruits, administration of calcium and injections of horse serum. The condition is rare in adults.

Klinicheskaya Meditsina, Moscow

4: 1-40 (Jan.) 1926. Partial Index

Treatment of Psychoneuroses. Y. Kannabikh.—p. 1.
*Modified Technic for Percussion. Y. Shwartsman.—p. 15.
Apparatus for Capillary Blood Pressure. A. Nesteroff.—p. 18.
*Cysts of Cowper's Glands. G. Baradulin.—p. 26.

Modified Technic for Percussion: Its Physical and Psychic Bases.—Shwartsman gives an illustration of his method of percussion for defining the dimensions of the heart: The wrist of the right hand, in dorsal flexion, is held firm on the chest, while the fingers, slightly bent, are fixed in the metacarpophalangeal joint. Percussion is done with the palmar surface of the ungual phalanx of the index. The blows should be stronger when the left border of the heart is explored. The percussion starts from the lung, whence it is continued to the aorta and heart. The sternum and ribs do not sound under this percussion; thus, the sounds on the cardiac area can be easily differentiated from those on the lungs. Psychologically, the muscular tension requires concentration of attention; consequently, the striking force is kept uniform during the percussion. The limits of the heart, as shown in different diseases with this technic, were identical with those indicated by the orthodiagraphic method.

Cysts of Cowper's Glands.—Baradulin found eight cases of cyst in a Cowper's gland among forty patients with chronic gonorrhea. In cases in which the gonorrheal affection of the gland persists, the excretory duct may become obstructed and then the cyst develops. Milky discharge, difficult micturition and pain in the perineum are the symptoms of the cyst. The diagnosis can be established only by means of the urethroscope. In treatment, after the urethroscope is introduced, the cyst is incised; and a 1 or 2 per cent silver nitrate solution is injected. Good results are obtained from electrolysis. A thin bougie is introduced into the cyst, and connected with the positive electrode. A current from 5 to 10 ma. is applied for ten or fifteen minutes, the exposure repeated once or twice at one or two weeks' intervals.

4: 41-80 (Feb.) 1926. Partial Index

Human Organism from Biologic Standpoint. V. Karpoff.—p. 41.
Clinical Significance of Colloids. A. Solovtsova.—p. 49.
*Influence of Calcium on the Heart. N. Kevdin.—p. 55.
*Biologic Action of Electric Currents. E. Zalkindson.—p. 56.
Pathogenesis of Umbilical Fistulas. G. Rikhter.—p. 63.
Roentgenology of the Pathology of the Diaphragm. O. Den.—p. 66.

Action of Calcium on the Heart.—Kevdin's experience includes 200 intravenous injections of 10 cc. of a 10 per cent solution of calcium chloride. The research was conducted on persons in healthy or pathologic conditions. The rhythm of cardiac contractions became slower, the pulse wave increased, as also the systolic pressure, while the diastolic dropped. Calcium seemed to be of help in acute insufficiency of the heart, when associated with strophanthin or digitalis. It may be especially indicated in chloroform poisoning. In chronic heart insufficiency, calcium is a useful adjuvant of digitalis. Good results were obtained in purely functional disease of the heart, from disorders of the vegetative system. The treatment here is evidently only symptomatic. Intravenous injections of calcium act on the heart functioning for no longer than fifteen or twenty minutes. Therefore, the continued use of the drug by the mouth is preferred.

Biologic Action of Sinusoidal, Faradic and Constant Currents.—Zalkindson made fifty experiments on the isolated ears of rabbits. The sinusoidal and faradic current seemed to induce a reflex constriction of the vessels, by way of the peripheral sympathetic system. The vasoconstriction from constant currents is due to a direct action on the vessel walls.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2065-2180 (May 22) 1926

Interstitial Growth of Bone Tissue. W. M. de Vries.—p. 2066.
Jaundice from Protracted Use of Cinchophen. Klinkert.—p. 2080.
*Procaine Injection in Treatment of Sciatica. Adels.—p. 2082.
*Malaria Treatment of General Paralysis. J. de Jongh.—p. 2083.
Tertian Malaria with Long Latent Period. Kollewijn.—p. 2084.

Injection Treatment of Sciatica.—Adels reports complete success in his thirteen cases of rebellious sciatica. There

has been no recurrence since, the intervals up to ten years. He introduces the 10 cm. needle, the patient prone, to reach the sciatic nerve. Then he injects about 2 cc. of a weak procaine-epinephrine solution, and repeats in a week, and again two weeks later. The nerve is generally tender, which helps to locate it.

Malaria Treatment of General Paralysis.—De Jongh analyzes ten cases, eight in his own service, in which malaria treatment was applied. No appreciable benefit was realized in eight cases, but in the other two the improvement amounted practically to a cure. Such experiences even in only 20 per cent justify wide adoption of the method, he adds.

1: 2217-2320 (May 29) 1926

*Negative Pressure at Lumbar Puncture. E. Janzen.—p. 2218.
*Otolith Reflexes in Man. P. de Haan.—p. 2227.
Care of Umbilical Cord. G. F. Wesenhagen.—p. 2236.
*Vaccine Therapy of Bronchial Asthma. A. Pondman.—p. 2237.

The Preliminary Negative Pressure with Lumbar Puncture.—Janzen uses a three-way cock, long tube, and U manometer for lumbar puncture, allowing very accurate readings with no loss of the fluid. As the needle reaches the dura and pushes it in, this lowers the pressure in the space, and the manometer records a negative change until the needle pierces the dura and the fluid begins to flow out. The more elastic the dura, or the blunter the needle, the greater the negative pressure. In puncturing the cisterna, the pushing in of the dura and the negative pressure might have serious results. It is better, therefore, in making the puncture to use a sharp needle.

Otolith Reflexes.—De Haan describes tests on normal subjects, blindfolded, which show that as the surface on which they are standing is tilted, the head and the muscles spontaneously correct the effect of the tilting, so that the vertical position is maintained. In deaf-mutes, however, this reflex adaptability is lacking. When the surface was even slightly tilted, they fell, every time, as if they were wooden images. There seemed to be an entire lack of any sense of position in space with passive changes.

Vaccine Treatment of Asthma.—Pondman reports on the outcome of vaccine treatment applied systematically, by orders of a sickness insurance company, to policyholders with asthma. No special micro-organisms were discovered in examination of sputum, and no particular vaccine displayed special efficacy. It seems to act as a kind of protein treatment, and strict individualization is not necessary. About 400 asthma patients asked for the treatment; the best results were obtained in the young and well nourished. Complications seemed to annul the possible benefit. Only seven of fifty-seven with asthma from early childhood are still free from recurrence two years later, but fourteen are much improved, and twenty-five are somewhat improved. The corresponding figures in the group of forty-five with asthma acquired after an infectious disease or fall into water, are two cured, twelve much improved and twenty-two somewhat improved. The work was done by the state serologic institute at Utrecht, and the company has now abandoned the treatment.

Acta Medica Scandinavica, Stockholm

63: 425-588 (May 27) 1926

*The Kidneys in Diabetic Coma. L. Salomonsen and M. Harboe.—p. 425.
*Epinephrine by the Mouth. A. Brems.—p. 431.
*Blood Sugar. S. Jonsell et al.—p. 446.
*Metabolism in Pernicious Anemia. G. Becker.—p. 478.
Treatment of Diphtheria. H. Heckscher.—p. 522.
*Kidney Insufficiency. W. Kerppola.—p. 558.
Blisters on Mucous Membranes. K. Lunding.—p. 570.
Thyrotoxicosis and the Action of Iodine on It. J. Wahlberg. Supplement XIV.—pp. 1-148.
Function of Lung Expanded After Discontinuing the Artificial Pneumothorax. A. F. Lindblom. Supplement XV.—pp. 1-142.

The Kidneys in Coma.—Salomonsen and Harboe admit the possibility of diabetic coma without ketonemia. Insufficiency of the kidneys in coma may prevent the excretion of diacetic acid in spite of ketonemia. They noted in one of their patients a remarkable parallelism between the glycemia and retention of residual nitrogen. They believe that hyperglycemia may cause insufficiency of the kidneys.

Epinephrine by the Mouth.—Brems administered 8 cc. of a 0.05 per cent solution of epinephrine by the mouth. The subjects reacted with a hyperglycemia which reached its maximum in about one hour. He confirms the frequent occurrence of epigastric pains due to the drug.

Blood Sugar.—Jonsell, Jorpes and Sikström made a comparative study of the Schaffer-Hartmann and Hagedorn-Jensen methods. The former gives too high values, especially with low amounts of blood sugar. This explains the discrepancies in the reports on insulin intoxication (0.045 per cent with the former, 0.030 per cent with the latter method). They recommend the Hagedorn-Jensen method, and give some technical suggestions.

Metabolism in Pernicious Anemia.—Becker investigated the nitrogen metabolism in eight patients with pernicious anemia. He usually found a positive balance. The basal metabolism was above normal; the respiratory quotient was high. The blood chlorides were low, calcium normal, potassium frequently high. This may be due to destruction of erythrocytes.

Kidney Insufficiency.—Kerppola injected 1 mg. of epinephrine in nephritis patients. He had no therapeutic results in ten patients with edema of from one to three weeks' duration. Contrary to this, the albuminuria disappeared and the blood pressure dropped the next day in three patients who had postscarlatinal nephritis with a duration of from one to four days.

Norsk Magazin for Lægevidenskaben, Oslo

87: 425-528 (June) 1926

*Roentgenotherapy of Brain Tumors. Sæthre and Jørgensen.—p. 425.
*Tumor from Fibroid Myositis. G. Guldberg.—p. 459.
Gangrenous Zoster Involving Spinal Ganglia. J. Arnesen.—p. 465.
*Primary Cancer of the Scrotum. F. G. Gade.—p. 468.
*The Leukocytes in Pernicious Anemia. P. F. Holst.—p. 471.
*Protein Therapy in the Healthy. Axel Øwre.—p. 484.

Roentgen-Ray Treatment of Brain Tumors.—Sæthre and Jørgensen analyze eleven cases of intracranial tumors, with improvement under roentgen-ray exposures in all but two. It amounted to a clinical cure in six, even in one case in which no decompressive operation had preceded the roentgenotherapy. The shadow of the tumor has disappeared, but right vision is still defective. The tumor in this case was in the frontal region in a woman, aged 39. In one young man, epileptic seizures subsided after subtemporal decompressive trephining but the symptoms returned eighteen months later, with choked disk. Under seven courses of from two to three roentgen-ray exposures in the course of two years, the recovery has been complete during the nearly two years since. The taste and smell paresthesias suggested that the tumor was in the uncinate convolution. They insist that preliminary trephining is indispensable, not only as an aid in treatment, but as a safety valve for the increase in intracranial pressure which is almost inevitable at each exposure. The cases are illustrated; the intervals since the treatment in the nine cured or improved patients have been from nine to twenty-four months. There were no pituitary tumors in this series.

Myositis.—The fibrous myositis of the pectoralis major deceptively simulated a cancer in the breast. The microscope after removal of the breast failed to show the slightest sign of a malignant tendency. The tumor was in the muscle itself, and the mammary tissue was only adherent.

Primary Cancer of the Scrotum.—In the case described, no occupational factor could be discovered.

The Leukocytes in Pernicious Anemia.—Holst discusses the effect on the leukocytes from parenteral protein treatment (milk) in fifteen cases of pernicious anemia.

Parenteral Protein Therapy in the Healthy.—Øwre tabulates the changes observed in the blood after intramuscular injection of 5 cc. of milk in six healthy young adults. The temperature rose slightly in all, reaching 39.4 C. in one, and the leukocytes increased two or threefold, the rod-shaped nucleus forms up to fourfold.